

THE  
YEAR-BOOK OF  
TREATMENT  
FOR 1895.



# Allen & Hanburys Ltd.,

**Wholesale Druggists,**

**MANUFACTURING PHARMACEUTICAL & ANALYTICAL CHEMISTS,**

**MANUFACTURERS OF SURGICAL INSTRUMENTS,**

**ABSORBENT WOOLS & ANTISEPTIC DRESSINGS,**

**EQUIPMENTS FOR NURSING AND AMBULANCE STATIONS.**

**Contractors to H.M. Indian Government.**

*Laboratories  
and  
Warehouse—*

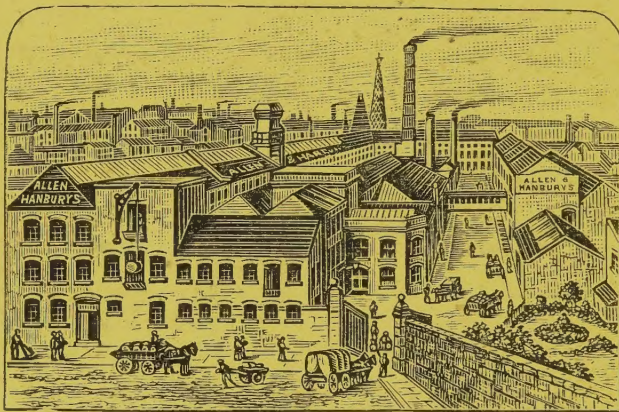
**BETHNAL GREEN,  
LONDON, E.**

*Australian  
Agency—*

**484, COLLINS  
STREET,  
MELBOURNE.**

*Cod Liver Oil  
Factories—*

**LONGVA AND  
KJERSTAD,  
NORWAY.**



*Surgical Instru-  
ment Depot—*

**48, WIGMORE ST.  
(CORNER OF  
WELBECK ST., W.).**

*City House—*

**PLOUGH COURT,  
LOMBARD ST., E.C.**

*And at*

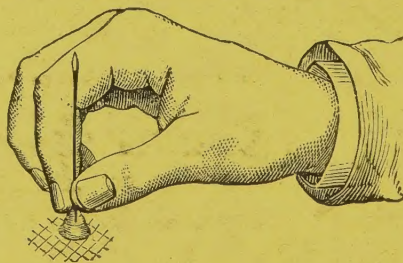
**7, VERE STREET,  
CAVENDISH SQ., W.  
LONDON.**

VIEW OF ALLEN & HANBURY'S LABORATORIES, WAREHOUSE & OFFICES, BETHNAL GREEN, E.  
(where all communications should be addressed).



**See also inside Back Cover.**

TRADE



MARK.

## **The Association for the Supply of Pure Vaccine Lymph,**

**12, PALL MALL EAST, LONDON, S.W.**

SOLE AGENTS FOR

**DR. WARLOMONT'S CALF VACCINE.**

Tubes, 2s. each; Half Tubes, 1s. each. Pomade in Vials, 5s.



**22101686485**

microscopically examined and  
found full, 1s. each.  
(but without source), in

ge.

(Westminster Bank"), with  
DARKE, SECRETARY.



# DR. RENNER'S ESTABLISHMENT FOR VACCINATION WITH CALF LYMPH,

186, MARYLEBONE ROAD, LONDON, N.W.

## PRICE OF CALF LYMPH.

TUBES	{	Large	...	...	...	2s. each, or 3 for 5s. 6d.
		Small	...	...	...	1s. each, or 3 for 2s. 9d.
POINTS	{	Large	...	...	...	1s. each, or 3 for 2s. 6d.
		Small	...	...	...	9d. each, or 3 for 2s.
SQUARES		...	...	...	...	2s. 6d. each.

*Registered Telegraphic Address: "Vaccine, London."*

Sent on receipt of remittance addressed to the Manager of the Establishment.

The value of a **Naturally-Pure Spring Water** for drinking with Meals and for mixing Medicines, Tea Making, &c., in Hospitals and in all Sick Rooms, is fully recognised.

## THE ALPHA BRAND MALVERN SPRING WATER IS UNIQUE IN ITS MARVELLOUS PURITY.



Bottled at the celebrated Springs, and protected from every taint by the Glass Stopper, this Water is a **real boon** in Invalid Nursing, and of great service in **Calcareous disease**.

A safe, reliable and refreshing draught always at hand renders resort to the often dangerous bedroom water-bottle unnecessary.

The late **Sir Andrew Clark** always drank this Water, and recommended it to innumerable Patients and Friends.

**Sir Henry Thompson** says:—"No purer Water exists in any Natural Sources than that of our own Malvern Springs."

The Alpha Brand Mineral Waters—**SODA, LITHIA, POTASH**, &c., prepared with this pure Water are unequalled.

Six Dozen of any sort sent **CARRIAGE FREE**.

Address—

## W. & J. BURROW, The Springs, Malvern.

Telegrams—"SPRINGS, MALVERN."



# **“Maltine” with Cod Liver Oil.**

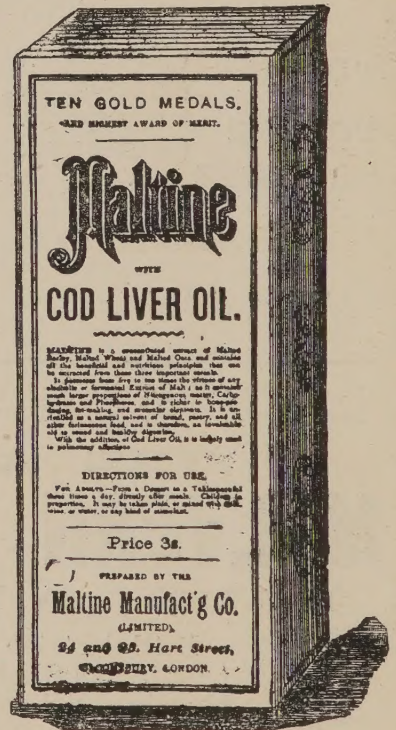
In this combination the oil is free from the usual drawbacks, and the preparation presents at the same time special advantages. The extremely intimate incorporation of the oil with the “MALTINE” is shown by the minute sub-division of the oil globules, which are invisible under ordinary microscopic power. The oil is in a condition to be at once assimilated, and is practically pre-digested fat. The oil and the malt form a perfectly homogeneous compound, and the disagreeable taste of the oil is admirably disguised by the malty odour and pleasant flavour of the “MALTINE.” The oil is rendered palatable, and its digestibility is effected in this combination; but, in addition, it presents other advantages. The menstruum, so far from being an inert substance, is a food, containing, in assimilable condition, elements as valuable and essential as the principles of cod liver oil.

It likewise affords a digestive agent for the conversion of farinaceous food, that is often specially indicated in cases for which cod liver oil is prescribed. “MALTINE” with Cod Liver Oil contains a large proportion of cod liver oil, which is tolerated by the most delicate stomach, its use not being followed by eructation; and on account of its palatability, digestibility, and superior nutritive properties, is regarded as the standard malt and cod liver oil preparation.

**“Patients unable to tolerate the purest and most carefully prepared cod liver oil can readily digest and assimilate it when combined with ‘Maltine.’”—BRITISH MEDICAL JOURNAL.**

In prescribing, please specify **“MALTINE CO.”**

*Samples Free to Medical Men.*

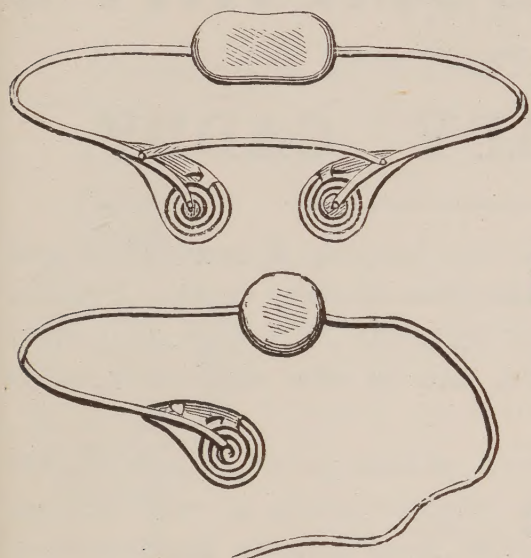


**The Maltine Manufacturing Company, Ltd.,**

**24 & 25, HART STREET, BLOOMSBURY, LONDON.**



# The Latest Improvement in Trusses.



**WM. COLES & CO.,**

INVENTORS AND PATENTEES

OF THE

## Spiral Spring Truss,

Also Special Adaptation

FOR THE

Support of Floating Kidney.

225, PICCADILLY, W. (*late 3, Charing Cross*),

*Two Doors from "The Criterion."*

PARTICULARS, &c., GRATIS BY POST.

**Established 1821.**

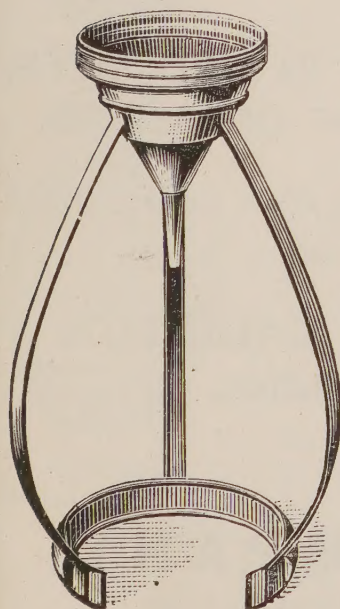
## THE PRACTITIONER'S BEST FRIEND, **THE SPARE HAND,**

Registered No. 22525.

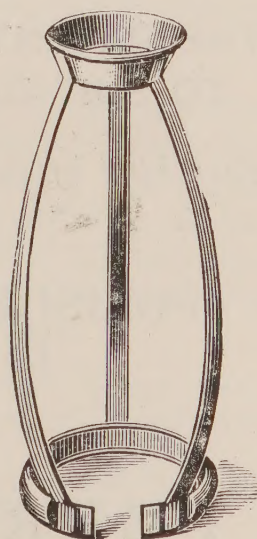
An ingenious and excellent Time-saver for use by Dispensing Surgeons, Chemists, Wine Merchants, Bottlers, and all who value time in dispensing or bottling. Approved by all who have tried it ashore or afloat.

Agents—BURGOYNE,  
BURBIDGES & CO., London;  
SOUTHALLS, Birmingham;  
WOOLLEY & SONS, Manchester; or of  
A. HASLEWOOD, Buxton,  
Derbyshire; and all  
Druggists' Sundrymen, and  
Instrument Makers.

Prices, 2/6 and upwards, 4 oz. to Winchester, and also made any size to order. Sample, 6 or 8 oz. size, sent carriage paid for 3/6 anywhere in the Kingdom, or Winchester size, 4/6.



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# FERRIS & COMPANY'S

## PATENT

### "EVER-READY" CADDY.

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A novel and elegant invention for keeping **Spread Plasters, Strapping, Lint, Wool, Antiseptic Gauze, Gutta Percha Tissue, Oiled Silk**, and other Surgical Dressings, in perfect condition, clean, without waste, and in the smallest possible compass.

Dressings stored on this new patent principle are always handy and ready for use; the original outlay is very trifling, and the contents can be renewed from time to time without the necessity of purchasing a fresh Caddy.

---

A very complete list of the "Cylinder Wound" Dressings, with prices and illustrations of the Patent Caddy, will be forwarded on application. Special quotations for large consumers.

Nearly every kind of sheet dressing is adapted to these receptacles, and rolls of the "CYLINDER WOUND" PLASTERS, LINTS, WOOLS, GAUZES, etc., for refilling the Patent "Ever-ready" Caddy, can be obtained from the patentees.

---

THE PATENT CADDY IS MADE IN TWO SIZES,  
TO SUIT DIFFERENT KINDS OF DRESSINGS.

*Each Kind of Dressing is fitted in a Separate Caddy, which  
can be refilled as required.*

**POLISHED MAHOGANY CABINETS**  
to hold a set of Caddies.

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SOLE PATENTEES:

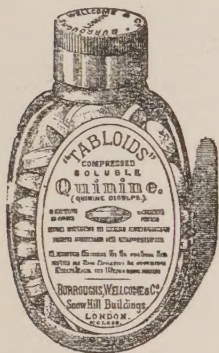
**FERRIS & COMPANY,**  
*Union Street, BRISTOL.*



# SOLUBLE "TABLOIDS" OF OWEN'S COLLEGE COMPRESSED DRUGS.

Prepared by **BURROUGHS, WELLCOME & CO.**

PURE.



PERMANENT.



PALATABLE.



PORTABLE.

Progressive physicians throughout the world have welcomed our improvements, and are offering us every encouragement to continue our work.

Successful practitioners now recognise the well-established facts that in the practice of medicine absolute accuracy of dose is of the greatest importance, and that the influence of the mind over the body is such that whims and fastidiousness of patients in respect to nauseous and palate-offending medicines cannot be ignored. It is well known that patients often deceive their doctor by secretly destroying or throwing away medicines which thus offend, or of which the appearance is repulsive, and this even in cases where the successful or unsuccessful action of the remedy is a matter of life or death; as a natural result, if the patient die or derive no benefit, the doctor, or the drug, or both, bear the blame.

"Tabloids" of compressed drugs in accurately divided doses greatly lessen the risk of error by nurses and patients, and afford an unchangeable and acceptable form for administration; at the same time these medicines are so compact and portable that patients traveling or attending to business, professional, or official duties, can easily carry them in the pocket without the least inconvenience.

In prescribing "Tabloids" the greatest care should be exercised to prevent substitution; in fact, when our products are required it is wise to append the initials "B. W. & Co."

*Official Text  
of Award conferred upon  
"Tabloids" at  
the Chicago  
Exhibition.*

"For purity of the medicine used in compounding; for ready solubility of coating and ingredients of the "Tabloids"; for the improved method of manufacture, and general appearance of the manufactured article."

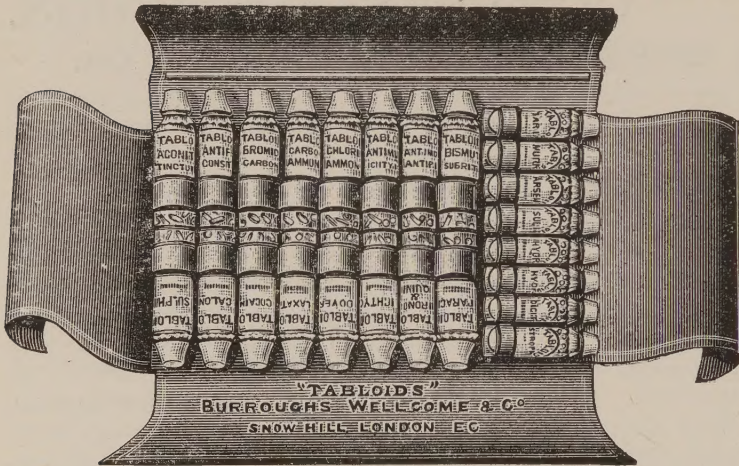
Complete List of the "B. W. & Co." Pharmaceutical Products sent to any Medical Man on request, also specimens and literature.

**BURROUGHS, WELLCOME & CO.,**  
MANUFACTURING CHEMISTS,  
**Snow Hill Buildings, London, E.C.**  
Telegraphic Address—"Burcome, London."



# THE COUNTRY PRACTITIONER AND "THE NEW PHARMACY."

See "*British Medical Journal*," Nov. 3, 1894, page 1013.



## CASE FOR THE POCKET.—No. 16 Modified.

Outside measurements, when closed,  $8\frac{1}{2} \times 6 \times 1\frac{1}{2}$  in. Contains sixteen 3 dr. and eight 1-dr. phials. Price, fitted with "Tabloids," from 35s.

be claimed that the "Tabloid" system of preparing drugs has effected a complete revolution in the fitting and equipment of Medicine Cases and Chests. Those supplied by us, of which the accompanying illustrations will give some idea, are eminently portable, practical, and useful, and bring about great saving of time, trouble, and space. By using "Tabloids," everything necessary is in the smallest possible bulk, and, besides this, may confidently be relied upon to produce in full

measure the desired physiological effect. The virtues of "Tabloids" themselves need not be commented on here, since they are sufficiently well known and recognised; suffice it to say that for portability, ready solubility, prompt and unimpeded action, absolute purity, moderate cost, convenience in form, and accuracy in dosage, they have received testimony from the medical profession in every part of the world. They do away with the necessity for weighing and measurement, and this fact alone is an advantage which cannot be over-rated.



## HAND OR CARRIAGE CASE.—No. 20.

Outside measurements, when closed,  $13\frac{1}{2} \times 9\frac{1}{2} \times 5\frac{1}{2}$  in. Contains eight 2-oz. stoppered, ten 1-oz., twelve 6-dr., and fifteen 4-dr. phials, with Spaces and Loops for Instruments. Price, fitted with "Tabloids," &c., from 120s.

We shall be happy to send list with prices and full particulars of Medicine Cases to any Medical Man on request.

**BURROUGHS, WELLCOME & CO.,**  
MANUFACTURING CHEMISTS, SNOW HILL BUILDINGS, LONDON, E.C.  
Telegraphic Address—"Burcome, London."

The medical man whose practice lies in a rural district extending over an extensive area, far removed from a chemist, has hitherto found it a great trouble to promptly and adequately provide his patients with medicines. He must either require them to send long distances, or he must convey with him on his rounds such an assortment as he is likely to want. But a sufficient quantity of the old-fashioned forms of medicine—powders, mixtures, &c.—is extremely cumbersome and awkward, if not completely impossible, of transit; and it is in this respect that the advantages of "Tabloids" become so manifest and conspicuous. It may fairly



# "HYPODERMIC 'TABLOIDS' ARE VERY SOLUBLE AND NOT AT ALL IRRITATING."—*The Lancet.*

b Aconitine Nitrate	1-260 gr.
a Apomorph. Hydroch.	1-10 gr., 1-15 gr.
a Atropine Sulphate	1-150 gr., 1-100 gr., 1-60 gr.
b* Caffeine Sodio-salicyl.	1-2 gr.
a Cocaine Hydrochlorate	1-10 gr., 1-6 gr., *1-4 gr., *1-2 gr.
b Codeine Phosphate	1-4 gr.
b Colchicin	1-100 gr.
b* Cornutin Hydrochloride	1-60 gr.
b Curare	1-12 gr.
a Digitalin, Crystalline	1-100 gr.
b Ergotinin Citrate	1-100 gr., 1-200 gr.
a Eserine Salicylate	1-100 gr.
b Homatropin Hyd.	1-250 gr.
a Hydrarg. Perchlor.	1-60 gr., 1-30 gr.
b Hydrarg. Sozoiodol	1-4 gr.
a Hyoscine Hydrobrom.	1-200 gr., *1-75 gr., *1-10 gr.
a* Hyoscyamine Sulphate	1-80 gr.
b* Hyoscyamine Sulphate	1-20 gr.
b Morphine Bimeconate	1-8 gr., 1-6 gr., 1-4 gr., 1-3 gr.
a Morphine Hydrochl.	1-6 gr., 1-4 gr.
a Morphine Sulphate	1-12 gr.
	1-8 gr., 1-6 gr., 1-4 gr., 1-3 gr.
a* Morphine Sulphate	1-2 gr.
Morphine Sulphate with	
Atropine Sulphate	1-12 & 1-250 gr.,
	1-8 & 1-200 gr., 1-6 & 1-180 gr.,
	1-4 & 1-150 gr., 1-3 & 1-120 gr.,
	*1-2 & 1-100 gr.
a Nitro-glycerine	1-250 gr.
† Pilocarpine Hydrochl.	1-10 gr.
† Pilocarpine Hydrochl.	1-6 gr.
†* Pilocarpine Hydrochl.	1-3 gr.
b* Quinine Hydrobrom.	1-2 gr.
b* Sclerotinic Acid	1-2 gr.
b* Sclerotinic Acid	1 gr.
b Sodium Phosph. Co.	
b* Sparteine Sulphate	1-2 gr.
b Strophanthin	1-500 gr.
b Strychnine Nitrate	1-15 gr., 1-10 gr.
a Strychnine Sulphate	1-150 gr., 1-100 gr., 1-60 gr.

Hypodermic "Tabloids," supplied in tubes of non-actinic glass, each containing 20 "Tabloids" (except those marked with asterisks, which contain only 12). Those marked a, at -/6 per tube; those marked b, -/8 per tube.

† The prices of Pilocarpine "Tabloids" 1-10, 1-6, and 1-3 gr., are 1/4, 2/1, and 2/6 per tube respectively.

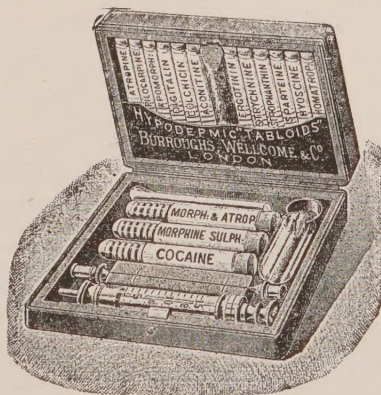
The fact cannot be too pointedly emphasised that solutions for hypodermic injection should in all cases be prepared at the moment, and it is to enable this to be done with a minimum of trouble and risk that Hypodermic "Tabloids" were introduced. They are tiny discs, each containing an absolutely exact quantity of



alkaloid, combined with a perfectly soluble and innocuous base. It takes only a few seconds to produce a perfect solution, and we feel justified in saying that no other method for the ready preparation of solutions at the time of using offers the same advantages to the practitioner as the employment of Hypodermic "Tabloids." They may also be used sublingually with great advantage in some cases.

## HYPODERMIC "TABLOID" POCKET CASES.

These Cases comprise complete Hypodermic Equipments, but at the same time occupy so little bulk that the presence of one of them in the pocket is scarcely felt. Each case contains a carefully selected syringe with two needles, a selection of Hypodermic Agents in "Tabloid"



PRICE, FITTED COMPLETE, 14/-.

form, and a Mortar and Pestle for crushing the "Tabloids." The absolutely reliable character of Hypodermic "Tabloids," their accuracy of dosage, their physiological activity, and their freedom from irritative or acid salts, have been demonstrated countless times. The accompanying block represents the "Miniature" case, designed to hold, in addition to the syringe and needles, fifteen tubes of assorted Hypodermic "Tabloids." It measures only 3 x 2 1/4 x 3/4 inches, and is the smallest and most compact case yet produced.

**BURROUGHS, WELLCOME & CO.,**  
MANUFACTURING CHEMISTS, SNOW HILL BUILDINGS, LONDON, E.C.  
Telegraphic Address—"Burcome, London."



# OPHTHALMIC MEDICATION.

## LIST OF OPHTHALMIC "TABLOIDS."

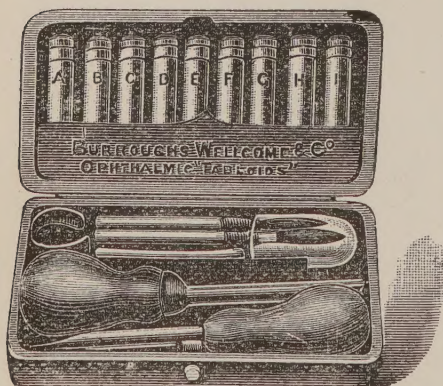
In ordering or prescribing it is necessary to quote the distinguishing letter only; e.g.—

R "Tabloidi" Ophthalmici A  
(B. W. & Co.).

A	Atropia Sulph.	1-200 gr.
B	{ Atropia Sulph.	1-200 gr.
	{ Cocaine	1-200 gr.
C	Cocaine	1-20 gr.
D	Atropia Sulph.	1-20 gr.
E	Homatrop Hydroch.	1-40 gr.
F	Eserine Salicyl.	1-600 gr.
G	{ Eserine Salicyl.	1-500 gr.
	{ Tropacocaine Hydroch.	1-100 gr.
H	Homatrop Hydroch.	1-400 gr.
*J	Hydrarg. Perchlor.	1-1000 gr.
K	Pilocarpine	1-400 gr.
L	Tropacocaine Hydroch.	1-30 gr.
M	{ Pilocarpine	1-500 gr.
	{ Cocaine	1-200 gr.
N	Homatrop Hydroch.	1-600 gr.
O	{ Homatrop Hydroch.	1-240 gr.
	{ Cocaine	1-24 gr.
*P	Boracic Acid (perfumed with Otto of Rose)	6 gr.
Q	Duboisine	1-250 gr.
R	Zinc Sulphate	1-250 gr.
S	Scopolamine Hydrobro.	1-200 gr.

\* For use in solution.

Supplied to the Medical Profession in tubes, each containing 25 "Tabloids," except C. D. E. G. L. O. S, which contain 6 "Tabloids" only, at 6d. per tube.



## OPHTHALMIC "TABLOIDS."

These are introduced to supply the long-felt want of a method of treating complaints and affections of the eye, which is easy of application, certain in effect, and free from objections from the patient's point of view. The frequent instillation of a solution is very distressing, and is often even injurious, since it disturbs the absolute rest which is so important a consideration in the treatment; besides, only a small quantity is retained, and that quantity is so diluted by the lachrymal secretion as to become very partial in effect. Ophthalmic "Tabloids" obviate these defects, and constitute a perfectly sterile and reliable mode of administering remedies to the eye. They are minute discs of the thickness of note-paper, extremely delicate in appearance, very soluble, and prepared with a perfectly innocuous and non-irritating basis. Each "Tabloid" holds a definite quantity of alkaloid. With two exceptions they are intended to be inserted within the conjunctival sac as they are, and when placed *in situ*, the eye being kept closed for a few minutes after insertion, they are immediately dissolved in the secretion and diffused over the surface of the eye.

## OPHTHALMIC CASE.

This case measures  $2\frac{3}{4} \times 1\frac{1}{4} \times 1\frac{1}{8}$  inches, and contains a medicine dropper, Tabloid-holder, two camel-hair brushes, a small glass mortar and pestle, and nine tubes of Ophthalmic "Tabloids." Nothing so complete, practical, compact, and portable has hitherto been placed at the disposal of the medical profession in this direction. To practitioners in rural districts and other places remote from the chemist, the Ophthalmic Case must necessarily become a *vade mecum*, since, while it is so small that it can be carried in the pocket almost without its presence being felt, it comprises a representative selection of those agents generally called for in ophthalmic practice, with apparatus for applying them.

Supplied to the Medical Profession,  
fitted complete, 7s. 6d.

**BURROUGHS, WELLCOME & CO.,**  
MANUFACTURING CHEMISTS, SNOW HILL BUILDINGS, LONDON, E.C.  
Telegraphic Address—"Burcome, London,"



# Lewis's Standard Publications.

- Roberts' Handbook of Medicine. 9th Edition. 21s.  
 Powell's Diseases of the Lungs and Pleuræ. 4th Edition. 18s.  
 Hall's Diseases of the Nose and Throat. 10s. 6d.  
 Anderson's Medical Nursing. 2nd Edition. 2s. 6d.  
 Fenwick's Dyspepsia of Phthisis. 6s.  
 Osler's Chorea and Choreiform Affections. 4s. 6d.  
 Kerr's Inebriety or Narcomania. 3rd Edition. 21s.  
 Corfield's Dwelling Houses. 3rd Edition. Illustrations. 3s. 6d.  
 Parkes' Infectious Diseases, Notification and Prevention. 4s. 6d.  
 Goodhart's Common Neuroses. 2nd Edition. 3s. 6d.  
 Gruber's Diseases of the Ear. By LAW and JEWELL. 2nd Edition. 28s.  
 Burnett's Diseases of the Ear, Nose, and Throat. 2 Vols. 48s. net.  
 Crocker's Diseases of the Skin. 2nd Edition. 24s.  
 Legg's Guide to the Examination of the Urine. 7th Edition. 3s. 6d.  
 Allen's Handbook of Local Therapeutics. 14s. net.  
 Kenwood's Public Health Laboratory Work. 10s. 6d.  
 Strumpell's Text-book of Medicine. 2nd Edition. 28s.  
 Gray's Nervous and Mental Diseases. Illustrations. 21s.  
 Boyce's Text-book of Morbid Histology. *Coloured Plates*. 31s. 6d.  
 Ringer's Handbook of Therapeutics. 12th Edition. 15s.  
 Steavenson & Jones' Medical Electricity. 9s.  
 Buxton's Anæsthetics. 2nd Edition. 5s.  
 Wethered's Medical Microscopy. 9s.  
 Fuchs' Text-book of Ophthalmology. 21s.  
 Skene's Diseases of Women. 2nd Edition. 28s.  
 Williams' Cancer of the Uterus. *Plates*. 10s. 6d.  
 Parkes' Hygiene and Public Health. 3rd Edition. 10s. 6d.  
 Lewis's Pocket Medical Vocabulary. 2nd Edition. 3s. 6d.  
 Crookshank's History and Pathology of Vaccination. 2 Vols. 20s. net.  
 Hill & Cooper's Syphilis. 2nd Edition. 18s.  
 Murrell's Massotherapy. 5th Edition. 4s. 6d.  
 Murrell's What to do in Cases of Poisoning. 7th Edition. 3s. 6d.  
 Swanzy's Diseases of the Eye. 5th Edition. 10s. 6d.  
 Lusk's Science and Art of Midwifery. 4th Edition. 18s.  
 Lewers' Diseases of Women. 4th Edition. 10s. 6d.  
 Barrett's Dental Surgery. 2nd Edition. 3s. 6d.  
 Pritchard's Diseases of the Ear. 2nd Edition. 5s.  
 Lewis's Temperature Charts. 50s. per 1,000; 7s. per 100; or 1s. per doz.  
 Lewis's Nursing Charts. 20 for 1s.; 100, 3s. 6d.; 500, 14s.; 1,000, 25s.  
 Lewis's Diet Charts. 6s. 6d. per packet of 100 charts, by post 6s. 10½d.  
 Chart for Recording the Examination of Urine. 40s. per 1,000; 25s. per 500; 15s. per 250; 7s. 6d. per 100; 1s. per 10.

\* \* Catalogue of Mr. LEWIS'S Publications post free on application.

LONDON: H. K. LEWIS, 136, GOWER STREET, W.C.



# DIABETES.

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## BONTHRON'S

# DIABETIC BREAD AND BISCUITS.

---

DR. PAVY, in his recent work on "DIABETES," p. 245, says :—

"Mr. Bonthron, of 106, Regent Street, has recently succeeded in producing some Gluten Biscuits and Bread which are more eatable than anything of the kind I have ever yet met with. The Biscuits present somewhat the character of a cracknel; they eat short and crisp, and are readily reducible in the mouth; have no unpleasant taste; and, consumed with other food, possess the power of cleansing the palate. The Bread is moist, and will keep good for about ten days. Its consumption, therefore, involves a frequent supply. It serves to increase the variety at the command of the Diabetic; and, independently of this, possesses the advantage of presenting an approach to the condition of ordinary bread."

The LANCET, under the head of Analytical Records, says :—

"We have received from the above well-known maker no less than six different samples of Biscuits, &c., intended for dietetic treatment. No. 1 is called the 'Diabetic Biscuit,' and contains much gluten and very little starch. No. 2 is the 'Regent Biscuit,' made from gluten and prepared bran. No. 3 is an 'Almond Biscuit,' and the rest are modifications of the first two. They are excellent preparations; and though, of course, they are not so palatable as if they contained the normal quantity of starch, they can be eaten without difficulty or repulsion. Indeed, it is not easy to see how they could be improved."

The Bread is made fresh daily, but its keeping quality is such that a week's supply can be forwarded in one delivery. The Biscuits, if kept in a dry warm place, will remain crisp for a long time.

While the Bread, Rusks and larger biscuits form the staple dietary, Messrs. Bonthron recommend, as a change of diet, their Cressini, Almond, Sponge Cakes—varied in flavour, Sponge Drops, Almond Shoots, Brazils, and other varieties.

*Price Lists on application.*

The **Gluten** Porridge Meal, recently introduced, with directions for making, makes an appetising dish.

Gluten Flour, 2s. 6d. per lb. Biscuits, 3s. 6d. per lb. Loaves, 9d. each.

Bran, 1s. per lb. *The Loaves can be sent through the post, 1s. each.*

It is with much satisfaction that Messrs. BONTHRON & Co. are able to state that they are now regularly supplying customers who have used these preparations for years, and from whom they receive testimony of the great advantage they continue to derive from them.

For our Gluten preparations the highest award—Silver Medal—was given at Edinburgh.

As Gluten preparations are costly, and are best when freshest, it is cheapest and best to communicate direct with the Makers,

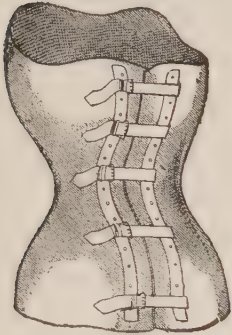
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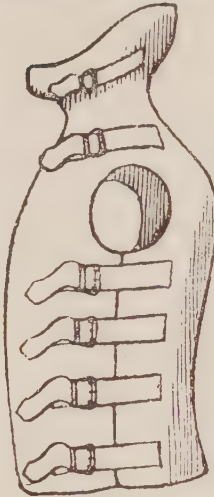
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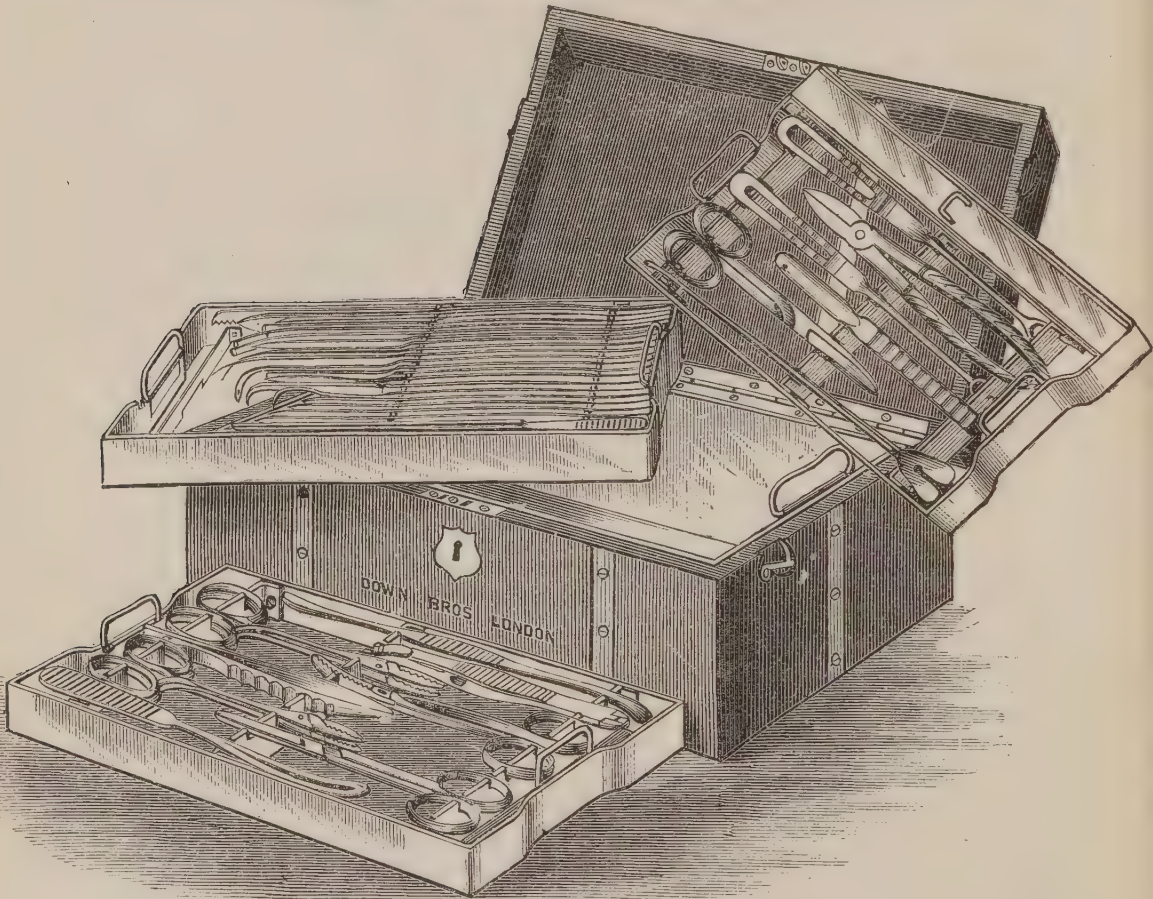
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MEDICAL CHRONICLE,  
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THE  
YEAR-BOOK OF TREATMENT  
FOR 1895





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TREATMENT

FOR

1895

*A CRITICAL REVIEW FOR PRACTITIONERS OF  
MEDICINE AND SURGERY*

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BARCLAY J. BARON, M.B.  
DUDLEY W. BUXTON, M.D.  
ALFRED COOPER, F.R.C.S.  
SIDNEY COUPLAND, M.D.  
GEORGE P. FIELD, M.R.C.S.  
ARCHIBALD E. GARROD, M.D.  
M. HANDFIELD-JONES, M.D.  
REGINALD HARRISON, F.R.C.S.  
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## P R E F A C E.

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IN this the eleventh issue of the "Year-Book of Treatment," the general plan adopted in previous editions has been adhered to. The only changes are that the section of "Diseases of the Heart and Circulation" has been undertaken by Dr. COUPLAND, that of "General Surgery" by Mr. WILLIAM ROSE, and that of "Public Health and Hygiene" by Dr. WHITELEGGE, while that of "Bacteriology" has had to be omitted owing to unforeseen circumstances.

It is the aim of the Compilers of the "Year-Book of Treatment" to make it not a mere summary of the medical literature of the past year, but a sifting of the grain from the chaff; and it is hoped that the present edition will be found not less useful than its predecessors by the busy practitioner who wishes, with a minimum of trouble, to keep himself abreast of progress in all that relates to the treatment of disease.

THE EDITOR.

*January, 1895.*



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THE  
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DISEASES OF THE HEART AND  
CIRCULATION.

BY SIDNEY COUPLAND, M.D., F.R.C.P.,

*Physician to the Middlesex Hospital.*

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THE most noteworthy contributions to the therapeutics of heart disease during the past year have been more in the direction of the value of what may be termed mechanical treatment as opposed to drug treatment; and especial attention has been given to the system in vogue at Nauheim, which is claimed to have certain advantages over the treatment initiated by Oertel. Nevertheless, current literature contains further contributions to knowledge of the activity and action of cardiac tonics, amongst which digitalis retains its supremacy. It will be seen that a conflict of opinion has already arisen as to the efficacy of digitalin and its alleged superiority to digitalis itself. The functional derangements of the heart are being studied more extensively, and in particular the nature and treatment of Graves's disease have been discussed in many quarters—especially in regard to the propriety and efficacy of surgical intervention. The subjects here considered may be grouped under the following heads:—

- I. Valvular Heart Disease and its Results.
- II. Affections of the Myocardium.
- III. Cardiac Tonics.
- IV. Cardiac Asthenia.
- V. Graves's Disease.



## I.—VALVULAR HEART DISEASE.

**1. The treatment of valvular disease in its various stages.**

In the recently published *Clinique Médicale de la Charité* (Paris : Masson, 1894), Prof. C. Potain devotes three lectures to the subject of the treatment of diseases of the heart, which may be usefully summarised here as expressing the general lines of such treatment chiefly pursued at the present day. Professor Potain deals in turn with the three stages or periods of evolution of cardiac disease, viz., the first or initial stage, where under the influence of an acute infective disease there may arise an endo-, myo-, or peri-carditis, which may lay the foundation of permanent organic changes in the organ ; the second stage, that of tolerance or latency, in which the organ, though permanently damaged in structure, yet continues to act efficiently. It is a period in which, as he puts it, lesion exists but no disease ; or, as it is commonly styled, there is compensation sufficient to overcome the hindrance to action due to the presence of the lesion. The third and final stage is that of "intolerance," where secondary disorders arise, from changes in organs due to the defects in circulatory mechanism. It is the period of "asystolism" (Beau) ; or that of failure of compensation, a term which Potain thinks is better replaced by that of "adaptation."

**Treatment during initial stage.**

When there is acute inflammation of the membranes or wall of the heart, cupping, leeches, or blistering may be had recourse to ; the blisters being replaced by iodine subsequently ; and the chest protected by a layer of cotton-wool. The application of ice in vogue in Germany (and it might be added in England also for pericarditis) has marked sedative effects, but requires careful watching. Internally, calomel may be given from the outset ; first in purgative doses, next in smaller quantity. To these measures are added the treatment appropriate to the infective disease or diathetic state upon which the carditis has supervened ; e.g., salicylates in rheumatism (and Potain thinks that the salicylates do influence the course of endocarditis), colchicum in gout, quinine in typhoid fever or influenza. For although quinine has no influence upon ulcerative endocarditis, it may be otherwise with the simple form. There is no disorder of cardiac rhythm in uncomplicated endocarditis, but if myocarditis be also present, then irregularity and excessive frequency of action call for the administration of cardiac drugs, such as digitalis, caffeine, or strophanthus. During this period absolute rest in bed is obligatory

the diet should be bland and light, mainly of milk. It may be necessary to procure sleep by mild hypnotics, and it is of importance that the patient should avoid mental excitement as much as possible.

The acute stage passed, the signs of disease may disappear, *i.e.*, cure may result ; or, more or less marked traces of the attack persist in valvular defects, dilatation of cavities, etc. It is possible for recovery to take place from myocarditis, so long as this has not passed into degeneration ; but the heart will remain vulnerable. Potain asks whether it is possible for a valve which has become deformed by endocarditis to be restored, and admits the difficulty of proving this. A bruit may disappear, but it is doubtful if the thickened tissue can be made to resolve. However, it is right to administer iodides with a view of aiding this resolution, if it can take place, and he prefers the sodium salt for this purpose, given in divided doses, and in free dilution, continued for a twelvemonth, with a week's suspension every fourth week. Should this not be tolerated, the iodo-tannic preparations may be given, and in the intervals some tonic—as arsenic and quinine ; in gouty subjects alkalies and lithia.

#### **Treatment during stage of tolerance.**

When permanent lesions are established, and organic bruits have replaced functional, the patient may remain long in a state of health, a state which may be prolonged by careful regulation of habits of life, and avoidance of conditions which may disturb the balance kept by nature. It is during this period that measures of hygiene are especially needed, to prevent the heart having an undue strain laid upon it. Some advise rest, regulated diet, attention to bowels, etc.; others urge that a tonic *régime*, exercise, even mountaineering, which will favour the activity of the cardiac function and promote hypertrophy, are preferable to inaction. The fact is that both methods are useful or harmful, according as they are judiciously selected or not. These subjects of cardiac lesion are not, strictly speaking, ill ; nor are they in a normal state. In them there is a definite limit fixed to the amount and degree of cardiac action, which cannot be over-passed without injury. The hygienic measures they take should aim at maintaining this state of tolerance, by preserving the general health and avoiding causes of disturbance ; and at the same time to permit of such activity as is compatible with the former and not productive of the latter. The restrictions to be imposed are based on the general laws of health ; and consist in the protection against diseases likely to induce a fresh attack of endocarditis or myocarditis, the limitation of muscular exercise, so as not to over-



tax the circulation, the avoidance of excess in food and stimulants, of moral agitation, of venereal excitement. Oertel urges especially a limitation in the quantity of fluids ingested, so as to diminish the volume of blood and thus relieve the work of the heart. There is no proof of the theory on which this recommendation is based; although in so far as digestion may be interfered with by too great an ingestion of fluids, the advice to restrict the latter—and thus save the heart from being disturbed in its action and thereby liable to dilate—is good. The endeavour to keep the heart functionally sound and thereby extend this period of tolerance by means of methodical exercise is owing to Oertel, such exercise developing compensatory hypertrophy and rendering the organ capable of more work. Hypertrophy, however, is a constant concomitant of organic valvular defects; and exercise would be of no avail if there were not already this compensation. And the condition of cardiac failure or asystolism is only in part attributable to imperfect cardiac contractions. Exercise is good in suitable cases, and taken with precautions. For one who has recently had an acute affection of the heart has all his functions, bodily and mental, enfeebled, and any undue effort is not only painful and difficult, but would tell on the then weakened heart. Muscular exercise therefore must be taken in graduated measure: at first by means of Swedish gymnastics, where movements are made against resistance; then walking exercise, which is better taken on a slight ascent than on the level. This was insisted on by Oertel, together with the value of such exercise being taken in the open air. The act of walking on a slope, which may be regulated to a nicety, is less provocative of fatigue than if it were on level ground. Oertel further urged the value of prolonging or retaining expiration during this exercise, since by this plan too great an afflux of blood to the chest is lessened, and the heart not so distended as it would be were deep inspirations taken. The degree and extent of this exercise have to be regulated in each individual case; and Oertel thinks it should go so far as to produce palpitation. A safer guide would be that it should stop short of producing fatigue.

#### **Treatment during period of intolerance or secondary derangements.**

In spite of all measures taken to prolong the period of tolerance, a time comes when there arise the multifarious disturbances which depend on the cardiac derangement. Hygienic rules now no longer suffice; it is the turn of therapeutics, which have to combat the effects of stasis or ischæmia in the organs involved on the one hand, and to diminish the

disturbance of the heart itself on the other. It is here that "cardiac medicaments" are needed.

**Digitalis** is the most active of these. Administered to the subjects of heart disease, it slows the pulse, regulates, equalises, and strengthens the cardiac contraction, and at the same time produces more or less free diuresis, dissipating œdema, and thus considerably improving the symptoms of asystolism. Yet it must not be used lightly, for there are cases in which it accelerates the pulse instead of slowing it, suppresses urine instead of increasing it, increases irregularity and weakness of the pulse, produces vomiting, diarrhœa, delirium. Although digitalis does act directly on the myocardium, its chief action is in stimulating the vagus; were this uncontrolled it would induce dilatation of the cardiac cavities as well as slowing of its beats, and there is no doubt that it also, if less powerfully, stimulates the sympathetic, causing an increase in the systolic energy, and a notable diminution in size of a dilated heart, as can be clinically demonstrated. If the dose be increased or the action of the drug prolonged, the over-stimulated vagus fails to respond, and the beats of the heart become accelerated. The vagus may be paralysed to such an extent as not to respond to electrical stimulation. The further toxic effect of digitalis is arrest of the heart in systole, and it is possible to revive the action of the organ by distending it with artificial serum. Digitalis acts in an analogous way upon the small vessels, increasing their contractility, but the degree of change in arterial pressure which may thus be induced is variable, and is quite independent of the frequency of the heart-beats.

Hence moderate doses of digitalis will slow the action of the heart, prolonging its diastole, so that it receives more blood, and owing to its action on the sympathetic and directly on the heart muscle, propels this with increased force into the arterial system; at first the capillaries offer an increased resistance to this cardiac activity, but the ultimate effect is a more rapid flow of blood through the circulatory system. But with larger dosage, or from cumulative action of the drug, the activity of the vagus becomes exhausted, and the heart is accelerated, besides being less able to overcome the resistance in the capillaries, and eventually it will be arrested in systole, not in diastole, as would be the case if the vagus stimulation had continued. Therapeutically the most striking fact is the diminution in size which a dilated heart will undergo by the administration of even a single dose of digitalis; a diminution readily recognised by percussion. This change depends on the heart more completely emptying itself during



systole and becoming less distended during diastole, and is partly due to increased cardiac energy, partly to improved regulation of the peripheral circulation.

The diuretic action of digitalis is mainly in proportion to the amount of œdema present—a fact pointed out by Ringer in 1870. Indeed, in a healthy subject it may sometimes produce only a transient and slight diuresis, whilst in the dropsical, if its administration be pushed after disappearance of œdema, it may excite anuria or hæmaturia. That this diuretic effect is *not* due to rise of arterial pressure was shown by Brunton and Power, who found that on intravenous injection of digitalis the urinary secretion fell as the arterial pressure rose, and *vice versâ*; and Potain has found in man that there is no relation between the amount of diuresis and changes in arterial pressure. The diuretic effect seems to be related neither to the direct action of digitalis on the kidney nor on arterial pressure, but rather to the changes it induces in the peripheral circulation, the increased flow of blood increasing endosmosis and thereby assisting in the elimination of the dropsical exudations. The action of digitalis often persists after the drug has been discontinued, and it is cumulative, a property not, however, due to defective elimination (Van der Heyde).

The prescription of digitalis is indicated by conditions of frequency, inequality, irregularity, and insufficiency of cardiac pulsations, and by the occurrence of dropsy. If these conditions do not obtain, it should not be given, for to give it when it is not needed may render its employment ineffective or dangerous when it is called for. It should not be given if not tolerated by the digestive organs, *i.e.*, if it excite vomiting or diarrhœa; nor should it be given even when there is irregularity of heart and œdema, if the pulse be slow, unless this slowness be due to the failure of some of the cardiac pulsations to reach the wrist. In the latter case it is of great service. Again, if the myocardium be too degenerate to respond effectively to stimulation, the use of digitalis may be harmful, and it should only be given with the greatest circumspection; and opinions differ as to whether its prescription in such cases is legitimate at all. The nature and seat of a valvular lesion is not to be taken as a guide to its administration; for whatever the lesion, if the above-mentioned indications of cardiac failure are present, then digitalis is called for. Thus it may become necessary to give it in cases of aortic obstruction or of aortic insufficiency, and in mitral obstruction, when these secondary effects arise. In mitral regurgitation, on the other hand, the action of digitalis in prolonging the diastolic

period makes it of value from the first. Tricuspid regurgitation is generally associated with the other indications for its use, and here again the increased systolic power is of advantage, although care must be taken not to cause over-distension of the pulmonary vessels which have become adapted to a condition of lowered tension.

In cases of cardiac failure supervening on hypertrophy from increased peripheral resistance, *e.g.*, atheroma and sclerosis, it is wrong to suppose that digitalis ought not to be given for fear of increasing the peripheral resistance. In Basedow's disease and allied cases of tachycardia, digitalis is of little if any service; whilst in cases of dilated heart depending on gastro-intestinal derangement, digitalis is positively harmful from its liability to increase the gastro-intestinal trouble.

Potain then discusses the various proportions of digitalis—the powder, infusion, tincture and aqueous extract; pointing out the greater constancy of the tincture, which however is likely to derange the stomach if given in large doses. As to the “digitalins,” which have the advantage of being readily preserved and well borne, they vary much in power, *e.g.*, the digitalin of Merck is 20 times less active than that of Nativelle. He shows that 10 centigrammes of good digitalis leaves are equivalent to  $\frac{1}{4}$  milligramme of crystallised digitalin, 32 drops of alcoholic tincture or 45 centigrammes of the aqueous extract. The infusion is generally preferred when the diuretic effect is mainly required; but variations noted in this respect depend simply on the fact that equivalent quantities of the different preparations have not been compared. For prompt and energetic action, digitalin or the tincture is to be preferred; the digitalin used by him being that of Mialhe, prepared at the dispensary of Petit. He gives a dose of 1 milligramme of this substance, and at the end of 48 hours diuresis is established; or the quantity may be divided into four or five doses, administered on successive days. On either plan it is well to allow some time to elapse before repeating the dose—the time for repetition being indicated by a rise in pulse-rate and fall in the quantity of urine excreted. Potain says that in his cases it may be 10 to 15, or even 21 days before a second administration is called for; and he thinks that by this means there is no risk of inducing intolerance or a too rapid exhaustion of the efficacy of the drug. He says, “The intermittent administration of digitalis in *sufficient* doses to produce manifest effort and at *sufficient intervals* to avoid any danger from cumulative action is the method I have followed for many years, whenever I have desired to produce a powerful action of the drug.” He adds



that this opinion is shared by **Dujardin-Beaumetz** and **Fraenkel**, and was expressed by **Liebermeister** in a criticism of **Fothergill's** advocacy of the continuous administration of the drug. In his (**Potain's**) view, this latter plan has its drawbacks, for it is slow in obtaining reaction, and exhausts the power of the economy to react, whilst by its cumulation it may saturate the system, inducing a sort of intoxication, without producing the therapeutic effect desired. That such intoxication by *digitalis* is possible has been long pointed out by **Duroziez**; it is shown in coldness, pallor, prostration, nocturnal delirium, and a tendency to syncope, probably a condition of cerebral ischæmia being established by the prolonged action of *digitalis* on the small vessels.

**Strophanthus** resembles *digitalis* in slowing the action of the heart through the vagus; but it acts less powerfully on the small vessels. On the other hand, its stimulant effect on the heart itself is stronger than that of *digitalis*, and not being cumulative, it is sometimes preferably employed. **Dujardin-Beaumetz** thinks it is of especial value in subjects of albuminuria; **Potain** and **Lépine**, in cases marked by dyspnœa, oppression, and precordial anxiety.

**Caffeine** has a similar action, and like *digitalis* and *strophanthus*, has a direct effect on heart-muscle as well as an indirect one through the vagus. In the former respect it is more powerful than those drugs. Its diuretic action seems to be due to its direct influence on the renal cells, analogous to the action of *pilocarpine* on salivary glands. It is rapid in its effect, and may be given hypodermically, but the effect is not lasting, and it has no cumulative property. It may produce restlessness, insomnia, and headache. **Huchard** says it is preferable to *digitalis* in cases where the myocardium is enfeebled or altered; and it may replace either *digitalis* or *strophanthus* if these are in operation. An average dose to produce a notable effect on the heart is 60 centigrammes (about 9 grains) for the 24 hours. **Nothnagel** has given as much as 2 grms.50; **Huchard**, 3 grms. (about 45 grains). It is soluble in water, in the proportion of 2 per 100; or it may be dissolved together into benzoate of sodium, salicylate of sodium, or potassium bromide. The bromohydrate of caffeine is very unstable.

**Theobromine** is nearly identical in its action with caffeine.

**Sparteine**, much vaunted by some, has been tested and found wanting by others. Indeed, most contrary opinions have been given. It might be employed if other drugs fail; but the occasion rarely arises. The sulphate is to be preferred, as being more soluble than sparteine alone, and the daily dose is 0.1 centigramme.

**Convallaria** was introduced by Professor Sée in 1882, as an adjuvant to digitalis, to which it was thought to be superior in some respects, as in not affecting the nervous system, in not being cumulative, and in more effectually reducing œdema. This opinion has hardly been substantiated by subsequent experience, although there is no doubt that some have found it very efficacious. It is difficult to believe with Bruen, of Philadelphia, that it is in some sort a specific for fatty degeneration. Nor does its glucoside, convallamarine, have any more constant action. The dose of convallaria extract is 1 to 2 grammes (15 to 30 grains) per diem ; of convallamarine, 0·05 to 0·1 centigramme ( $\frac{1}{100}$  to  $\frac{1}{300}$  grain).

**Coronilla** was found by Spillmann and Haushalter to be a cardiac tonic of rapid action, but its action is soon exhausted. It is not to be preferred to digitalis in small doses, and even moderate doses may excite gastro-intestinal irritation. The same may be said of **adonis vernalis** and its glucoside—adonidine.

**Barium chloride**, introduced by Hare, is merely mentioned.

Potain, in summing up the whole question of the treatment of cardiac cases, says that the drugs employed chiefly revive the failing energy of the heart, when this failure has not passed beyond relief ; that they in general tend to slow and regulate the beats, and that they are all more or less diuretic in slightly differing ways, but only to a marked extent when there is pronounced œdema. Of them all, digitalis remains the best and surest. The persistence of its action calls for special precautions in administration, but is also of great advantage ; whilst the slowness with which it acts makes it less serviceable than other drugs, *e.g.*, caffeine, in cases of urgency ; and where the conditions to be treated are less those of circulatory irregularity, stasis, and dropsy, than of pain and oppression, strophanthus is to be preferred ; whilst caffeine is better if there be marked enfeeblement or myocardial degeneration. However carefully these drugs are administered, the day will come when they excite no more response, and then another is substituted, or two or more are given in combination. Electrification of the vagus has been found of service in Basedow's disease, and may diminish or put an end to tachycardia. Potain has seen it act well in cardio-arterial disease accompanied by tachycardia, when drug treatment was of no avail. A descending continuous current is used, the positive pole being placed on the side of the neck, the negative pole on the anterior wall of the chest, an intensity of 10 to 15 milliamperes being used. Besides stimulating the heart, its work must be reduced, by enjoining complete rest of body and mind, and restricting diet. Purgation, *e.g.*, by calomel and scammony, may



occasionally be practised, whilst venesection is of service in cases of cardiac dilatation with pulmonary engorgement, although its effect is only transitory. The amount of blood entering the heart may be influenced by the tonicity of the capillaries opposing the too rapid transit of blood. On this ground it is well for patients with organic heart disease to have plenty of fresh air, and to avoid warm climates. Except in the cases of renal disease—which are favoured by a dry and warm climate, since in them the peripheral resistance is already excessive—it is not well for cardiac subjects to spend the winter in the south. The value of digitalis is quite as much due to its heightening this peripheral resistance as to its slowing the action of the heart, and quinine and the bromides may sometimes be used with benefit, probably on account of the analogous properties they possess in this regard. So, too, in anæmic subjects, iron is of service, not only by improving the quality of the blood and rendering it less fluid, but also by its action on the capillary walls, thus diminishing the quantity of blood passed into the heart.

## **2. Therapeutics of heart disease.**

Seymour Taylor, in a post-graduate lecture (*The Clinical Journal*, vol. iv., p. 3) on the Therapeutics of Heart Disease, truly says that the existence of valvular disease is not regarded so despairingly as it used to be. "Cardiac disease is amenable to treatment, and in many instances patients can be so relieved that life is no longer a burden, nor is the sufferer a heavy charge on his friends, or on a charity. We must recognise the fact that in disease Nature herself exerts efforts in the direction of repair, and we, by our art and science, can materially supplement such efforts." It is not enough merely to diagnose the existence of cardiac disease and failure; the precise nature of the disease must be known, and an estimate formed of the natural compensatory conditions. For if compensation be complete the disease is neutralised for a time, "although the causal condition is not cured." The administration of cardiac tonics should be suspended when compensation is secured, otherwise they may do harm, and the heart may fail to respond to them subsequently. To secure compensation, a first step is to improve the general health, for which iron, arsenic, quinine, and strychnine are useful. An important factor in treatment is *rest*, which often suffices to restore compensation. It is pointed out that cardiac tonics are of service only in cases of primary heart disease, but that they are harmful in cases where the heart trouble is consecutive to renal disease and increased arterial tension. Each of the valvular lesions is then discussed in turn, with the appropriate treatment,

In *mitral regurgitation*, where it is essential to strengthen the left ventricle, regulated exercise, diet, and regimen suffice in the early stages. But in time the ventricle begins to fail, and its beats quicken and shorten, so that it has no repose; then it is that digitalis, strophanthus, convallaria and other heart-tonics are of value by restoring the period of diastolic rest. In *mitral stenosis*—paradoxical as it may appear—the supervention of chronic bronchitis and other pulmonary ailments is beneficial rather than otherwise, by aiding in the establishment of hypertrophy of the right ventricle. Dr. Taylor has “observed good effects ensue in more than three cases of phthisis complicated with mitral narrowing, which had been treated by residence in high altitudes.” Later, when the ventricle becomes overloaded, relief is afforded by bleeding or purgation (such as sulphate of magnesia or potash, or compound jalap powder, or elaterium, or both combined). As Broadbent has pointed out, cardiac tonics and alcoholic stimulants are wrong in this stage. The congested venous system must be depleted. *Aortic obstruction* is, in Dr. Taylor’s opinion, the least serious form of valvular disease. The ventricle readily accommodates itself to the extra strain, and with moderate exercise, work which is not laborious, and a restricted dietary, life may “be prolonged to the allotted span”; whilst by graduated exertion the ventricular hypertrophy may be raised to such an extent as to endure more violent strains than could be met at the onset without distress or collapse. On the other hand, *aortic regurgitation* is the most serious form, and as it is unjustifiable to reduce the quantity of blood, since the arterial system is receiving less than its normal amount, the aim should be to increase the cardiac energy. Hence compensation is best secured by tonic treatment, iron and strychnine, or arsenic, with an animal diet. The secondary mitral insufficiency that often arises in such cases affords relief to the ventricle, and thereby removes a source of immediate danger. The *senile heart*, acting irregularly, with dilated ventricle, and diseased arteries, may be best treated by iron and nux vomica, or by caffeine, which is not only a cardiac tonic but relieves capillary tension.

Of the cardio-vascular tonics, **digitalis** is by far the best and most reliable. It may fail from some idiosyncrasy in the individual; it may cease to produce any effect and require to be replaced by other drugs. Some say that it should be given for not longer than ten consecutive days. It lessens the frequency of the heart-beats, increases the vigour of the systole, and lengthens the diastolic pause. By slowing the heart, it is of value in impoverished blood, independent of valve disease; and is equally of



service in cases of palpitation, due to plethora and excess of blood nutriment. It is especially indicated in failure from mitral regurgitation, as its primary action is on the capillaries, and its secondary action on the heart. It is harmful in uncomplicated aortic regurgitation, from the lengthened diastole favouring dilatation of the ventricle; and it is not free from danger unless aortic regurgitation is supplemented by mitral regurgitation. Digitalis should not be given on an empty stomach, as it may then produce nausea and vomiting.

**Strophanthus**, in small doses (mij of tincture), gradually increased and combined with ammonia and ether, is more useful in aortic regurgitation than digitalis, for it does not so markedly lengthen diastole, and has not so much cumulative action. **Convallaria majalis** has a similar action to digitalis, but less marked. Often when one or other of these drugs fails individually, a combination of them will succeed. **Taylor** does not think digitalin so useful as the whole drug, which may contain other principles of value. **Belladonna** is of service when digitalis has disagreed; lessening palpitation, diminishing sensitiveness of the endocardium, and lessening irritability of the stomach. Locally it relieves cardialgia. **Caffeine**, a diuretic as well as heart-tonic, may be given by itself (2 grs. of citrate), or combined with tincture of convallaria. It is of especial service to the slow labouring heart of senility. **Strychnia**, or preferably tincture of nux vomica, is a valuable cardiac stimulant, and a powerful adjunct to digitalis. It is "especially useful when the right heart is failing and dilating in chronic bronchitis and emphysema."

**Iron and quinine** increase the muscular tone of the ventricle and blood-vessels; and their utility in heart disease has been somewhat overlooked. In advanced disease, **morphia** will relieve the distress and sense of heart-weariness; its use is "not necessarily contra-indicated even in albuminuria, and usually the good axiom obtains, that the indications for morphia, as a rule, outweigh those against it." **Alcohol** is not a cardiac tonic, but only a temporary stimulant, and may be reserved for cases of flabby dilated hearts, as in the last stages of mitral disease, in very chronic bronchitis and asthma and senility. It is contra-indicated when the heart's action is strong yet irritable, and when too there is generally insomnia. Lastly, **Taylor** alludes to the use of **Prunus virginiana** or American wild cherry, as of especial value in giving tone to the enfeebled heart-muscle, from whatever cause arising. He also points out that these drugs are applicable to acute endocarditis, in reducing the rapidity of the-

heart, and thus diminishing the strain on the valves, which favours the inception of chronic derangement.

As regards other than simply therapeutical measures, he points out that physical exercise in moderation is valuable for inducing compensatory hypertrophy, and in the heart-failure of old age; and that when dilatation sets in, its progress may be lessened by rest, restriction of diet, as well as by the use of cardiac tonics. The local application of cold by ice-bags to the precordia is a powerful stimulus to ventricular contraction.

### 3. Treatment of valvular disease.

Liebermeister (*Deutsch. med. Woch.*, No. 46, 1893, Abstr. in *University Med. Mag.*, Sept., 1894), in an article upon the treatment of valvular disease of the heart, points out that compensatory hypertrophy takes place in some cases quickly; in others, much more gradually; and during the process absolute rest is needed. Special treatment may be called for if disturbance of the circulation occur before compensation is complete; and in such cases light exercise, as light gymnastics on rising, walking on the level, and later climbing to a slight extent, may be prescribed; the amount of such exercise being regulated in each case. Any palpitation or dyspnœa shows that the limit of safety has been reached. The nutrition must be maintained, and the free administration of milk is advocated for this end. Alcoholic stimulants should be forbidden, or only sparingly taken. In summer a residence at an altitude of 1,500 to 3,000 feet in a forest region is desirable; in winter, such a climate as to allow of the patient living in the open air as much as possible. If hepatic enlargement, dropsy, etc., indicate that there is loss of compensation, rest in bed may alone be necessary. But if this be impracticable, or rest does not suffice to restore compensation, digitalis must be given; and it is essential that the patient should at the same time have rest in bed. The dose necessary to ensure the full action of the drug is from 8 to 24 grains, which should be administered in from three to five days. It should be left off when the quantity of urine reaches 4 to 6 quarts, or when vomiting occurs. Between the times of administering these large doses, no digitalis should be given, else it loses its effect. If it do not act, strophanthus or convallaria may be substituted. Calomel in from 3- to 6-grain doses, three times daily, is useful for its diuretic action. Diuretin and caffeine may be used where there is much palpitation. Cold applications to the heart are often of great value. Blood-letting is especially useful in cases of great disturbance of compensation, with pulmonary œdema and cyanosis.



### **Treatment of mitral stenosis.**

James Barr, writing on mitral stenosis (*Liverpool Med.-Chirurg. Journ.*, No. 26, Jan., 1894), says that in the early stages the aim should be to diminish the high arterial tension usually present by salines and alteratives, moderate exercise, light diet with little fluid. The rheumatic tendency should be met by warm clothing and avoidance of climatic changes. The action of the skin should be maintained by baths and friction, and the patient should live as much as possible in the open air, a warm dry climate being best, and at not too great an elevation. Marriage is inadvisable, especially for the female, pregnancy and parturition largely increasing the risk of cardiac failure. A fair amount of exercise, even hill-climbing, is beneficial by increasing the circulation in the muscle and thereby increasing the capillary area. Food should be light and nutritious, not more than suffices to maintain healthy nutrition, and the amount of fluid ingested should not exceed two pints daily. Alcoholic drinks should be interdicted, but tea, coffee, and cocoa may be left to the discretion of the patient, except as regards the quantity of fluid. Milk is not to be recommended for rheumatic or gouty subjects, "and in cases of mitral stenosis it has the further disadvantage of being a liquid food." Tobacco should be forbidden. Drugs are not needed except for some complication or some failure in compensation.

But the disease is progressive, and beyond the general plan indicated, the further treatment will mainly depend on the nature of the complications. When there are signs of failing compensation, the "excellent old-fashioned restorative of rest in bed" is preferable to "fashionable treatment by graduated exercise on a mountain side." A few days' rest, a dry diet, and a cholagogue cathartic may be all that is required; but if a longer stay in bed be necessary, then massage may replace active exercise. The high tension in the pulmonary circuit which leads to atheroma and to lung induration is sometimes spontaneously relieved by profuse hæmoptysis, an indication sometimes for more copious blood-letting. Such venesection, to act directly on the engorged right heart, is more efficacious from the hæmorrhoidal veins, which are in direct communication with the vena cava, than from the veins of the arm. In a very urgent case it might be permissible to aspirate the right ventricle as suggested by Dr. Westbrook, or to aspirate the engorged liver. Brisk catharsis by saline purgatives, and the administration of "sweet spirits of nitre or nitroglycerine to increase the capacity of the systemic arterioles and capillaries, and thus indirectly relieve the engorgement of the

lungs ; lessening the quantity of liquid ingested, so as to diminish as far as possible the fluid in circulation, and then employ such a hæmostatic as turpentine, which clears out the blood lodged in the air vesicles." When there is marked failure of the right ventricle, the signs of systemic venous engorgement become manifest, and with free tricuspid regurgitation, ascites may develop, as the first dropsical event. The radial pulse is small, weak, and irregular, the action of the heart tumultuous, the right ventricle becoming more and more over-distended. Blood-letting from the arm in such circumstances can usually increase the depletion of the arterial system, and therefore direct aspiration of the ventricle might be resorted to, or, in less urgent cases, aspiration of the liver or hæmorrhoidal venesection. At the same time a brisk cholagogue may be given ; sinapisms to the precordia ; internally, nitroglycerine, atropine, ammonia, ether or alcohol, or ether and atropine hypodermically. The urgent symptoms passed, cardiac tonics may be given, and strophanthus combined with nitroglycerine ; or atropine and nitroglycerine ( $\frac{1}{200}$  grain of each), with addition of small doses of tinct. digitalis or tinct. strophanthi, are good ; or ammonia, caffèine and nux vomica ; and, as the case improves, a mixture of citrate of quinine and iron, digitalis and strychnia, for short intermittent periods. Speaking of blood-letting as an auxiliary to treatment of cardiac cases, Barr points out that the conditions for its performance should be clearly laid down, and that care in limiting the quantity of ingested fluids, or the use of free catharsis, may obviate recourse to this measure.

## II.—AFFECTIONS OF THE MYOCARDIUM.

### 1. The influence of muscular work on the heart.

**Hermann Christ** (*Deutsch. Archiv f. klin. Med.*, Bd. 53, 1 und 2 Hefte, June, 1894), in a paper on the influence of muscular work on the action of the heart, alludes to the fact that cardiac disease may arise idiopathically from overstrain, either as acute dilatation or as a chronic hypertrophy with dilatation. The writings of Seitz, Leyden, Clifford Allbutt, Da Costa, and Münzinger are referred to ; but the fact that the cardiac changes in question are not common to all who are subjected to severe muscular exertion in their daily work seems to show that there must be some predisposing condition present, such, for example, as the myocarditic changes recently described by Romberg as frequent complications or sequelæ of various infective diseases. The early detection of such predisposition being of great moment,



it is important to have some means of testing the power of resistance of the heart, and this may be found in the behaviour of the heart to slight effort. Spengler studied the pulse-changes induced by alterations in the position of the body, as a means of diagnosing cardiac weakness. That such changes, *e.g.*, from sitting to standing posture, have a marked effect is well known in the case of convalescents from acute febrile diseases, in whom syncope, even fatal, may be produced thereby; Romberg found, as indeed might have been anticipated, that alterations in the pulse thus induced were far more marked in those in whom the cardiac power had been diminished by disease than in the healthy. A much more important factor in influencing cardiac action is muscular contraction, which operates in part by compressing the intra-muscular capillaries, in part by accelerating the emptying of the veins. The former raises the pressure in the aortic system, the latter increases the work of the heart as it has to expel a larger quantity of blood. It was in order to determine the extent to which the activity of the heart can be increased, whether its rhythm as well as the intensity of its action is influenced, what is the amount of the difference in reaction between healthy and sick individuals, and whether any diagnostic clues could be gained therefrom, that the writer examined the question. Not every kind of muscular work was suitable for such an inquiry. The best seemed to be the work undergone by stair-mounting, which can be regulated, and which allows full freedom to the play of the respiratory muscles. Since there are obvious objections—partly those concerning the observer himself—an ergostat was employed which had been invented by Dr. Jaquet, in which the subject performs the step movements required, and the amount of work can be measured. It is, in other words, a treadmill constructed on scientific principles, which allows of observations being made on the pulse, including sphygmographic tracings during definite periods, and the amount of work done being measured in kilogrammes. The observation begins with taking a pulse-tracing, care being had that there is no cause for disturbing the heart's action. The sphygmograph is kept applied to the right arm of the subject whilst he is on the ergostat, and as soon as the allotted task is over, another tracing is taken. Observations were made on twenty-nine healthy subjects and convalescents, and the results are tabulated in two series under each of these categories. As regards *pulse frequency*, the rate of increase in the beats was found in most individuals to be fairly proportionate to the amount of the work done, but only up to a certain point; it would seem as if the pulse-rate attained a

maximum which an increase in the work could not cause to exceed. The most rapid rate observed was 167 beats in the minute, in a convalescent from typhoid after moderate work (5,200 kilogrammes in 11.55 minutes). It was found, too, that even in the same individual the amount of reaction was not always the same with the same amount of work. In one case of severe work (12,400 kilogr. in 23.45 minutes) the difference in pulse-rate before and after exercise was not so marked as when the same individual was subjected to less work, but on the former occasion the frequency rose from 111 beats per minute to 154, on the latter from 95 to 146, the initial rate being thus much higher. Contrasting the two series, it was found that the same rise in pulse-frequency which occurred in the healthy after work equivalent to 5,000 to 7,000 kilogr. was obtained in the convalescent after work of 1,000 to 2,000 kilogr.

The following examples illustrate the time taken for the *recovery* of the heart after the exercise:—

Case 29 (seated).	Before work.	P. 67
	After work, immediately	150
	„ „ 1½ min.	107
	„ „ 3 „	102
	„ „ 5 „	95
Case 25 (seated).	Before work.	P. 63
	After work, immediately	102
	„ „ 1½ min.	76
	„ „ 4½ „	77
Case 27 (seated).	Before work.	P. 102
	After work, immediately	167
	„ „ 1½ min.	136
	„ „ 3 „	125
	„ „ 6 „	125

Recovery is slower when the patient remains standing than when in the sitting posture.

Case 7.			Standing.		Sitting.
Before work	...	P. 102.	Before work	...	P. 80.
After work (immediately)		133.	After work (immediately)		136.
„ „ 2 minutes		125.	„ „ 3 minutes		103.
„ „ 3½ minutes		123.			

The pulse-tracings showed almost always a very marked degree of dicrotism following the muscular exercise—the first effect of which is to heighten, but the ultimate effect to *lower blood-pressure*. This, apart from the condition of the artery itself, is assisted by the increased frequency of the heart-beats, which occur at the expense of the diastole, and therefore diminish the time of filling of the heart with blood. As the heart recovers, the pulse slows, the



dicrotism disappears, and a tracing 5 minutes after the exercise nearly resembles that taken before its commencement. Signs of exhaustion of the heart were carefully observed—such as *palpitation*, shortness of breath, irregularity of the pulse. As it was undesirable to tire the heart, the exercise was mostly terminated on the appearance of these symptoms. Palpitation after muscular effort differs markedly from so-called nervous palpitation, being due to imperfect emptying of the organ from decrease in the systolic power. Indeed, two of the persons subjected to the exercise had previously suffered from nervous palpitation, one associated with tachycardia; and in neither of them did this experiment produce any sign of heart-exhaustion, and only a marked acceleration of the pulse in the latter. Arrhythmia and asystolia—the signs of cardiac exhaustion, irregularity of the pulse being regarded as, next to increased pulse-rate, the most constant sign of heart-weakness—was, however, not met with at all frequently. In one case a pulse markedly irregular before the exercise, became quite regular after it. The subject was a boy—formerly somewhat strumous, but at this time healthy—and Liebermeister has remarked that healthy children often have irregular pulses, which become regular if such children are febrile or under mental or physical excitement. This fact might therefore serve to distinguish between functional arrhythmia and that which is dependent on myocarditic lesion. It was remarked in three of the convalescents (from typhoid) in whom a slight amount of exercise produced marked increase of pulse-rate, that the area of cardiac dulness was notably increased (chiefly to the right) after the exercise, this change being accompanied in one case by a bruit. The changes disappeared after some time, and not one of the patients suffered from palpitation. This observation is of interest as demonstrating how a permanent dilatation may be initiated in convalescence from acute disease. Without claiming too much for this investigation, it is held that the kind of estimation of the cardiac capacity that it affords may be of practical utility in the early recognition of cases of overstrain, or in deciding whether a given individual is capable of undertaking labour involving much effort. The method, too, would be of service in diagnosis of palpitation, whether it be due to organic weakness, which would be increased by work, or be only a reflex phenomenon that might probably be favourably influenced by muscular exercise. It would also be of service in cases of cardiac disease as enabling an estimate to be made of the power of resistance of the heart, and thus to warn patients from unsuitable “Terrain-cur” which might only do them injury.

## 2. Treatment of fatty degeneration of the heart.

In a paper read at the International Congress (*Deutsch. med. Wochenschr.*, Nos. 27, 28, 1894), Theodor Schott of Nauheim remarked that the teaching of Stokes upon the benefit derived from regulated exercise in cases of fatty degeneration of the heart was for a time forgotten, and the older practice of enforced rest became the rule. Oertel, in his advocacy of the "Terrain-cur," practically revived the precepts of Stokes, whilst the system of massage and mechanical treatment of Zander followed the same lines. Schott has long practised in such cases a system of regulated muscular exercises, of which one method consists in the patient resisting passive movements of flexion and extension practised by an attendant (*Widerstandgymnastik*), and another where the patient himself checks movements in one or other direction by exerting the opponent muscles (*Selbst-hemmung-gymnastik*). Together with this they employed a treatment by baths—thermal, saline, and effervescent—with the object of stimulating the sensory nerves. More recently, other hydrotherapeutic measures, as packs, douches, etc., as well as vapour and hot-air baths, have been introduced. As regards dietetics, Schott points out that there is no means of reducing the fatty overgrowth on the heart which would not profoundly affect other organs; and that long-continued restriction to a nitrogenous diet would be fraught with harm, as so many of the subjects of this disease are also suffering from anæmia, gouty diabetes, or other complications. It must be, above all, borne in mind that any rapid loss of weight is harmful. He had often seen subjects of fatty heart who, under "mineral water cures," or dietetic regimen, had lost comparatively little weight, develop symptoms of cardiac dilatation. The same applies to the restriction of fluids; although, obviously a limitation in alcoholic drinks is desirable. By the mechanical treatment the heart affections in the corpulent can be improved, and even cured, without any reduction of obesity (*Entfettung*); and it seems as if under those exercises the muscular tissue of the heart is restored at the expense of the fat which has replaced it. There is no general loss of weight, and none of the signs of dilatation which have been known to follow rigid dietetic measures. Schott sums up with the following conclusions:—

1. Methods for the reduction of corpulency should only be instituted in the most careful manner, and then confined to young persons of normal blood composition and powerful muscles.

2. Any too strong or too rapid diminution of the body-weight should be avoided, for it may be dangerous.

3. General diseases, senile changes, etc., are to be regarded



as contra-indicating such methods—at least at the commencement of the treatment of the fatty heart.

4. In a large number of cases fatty heart may be successfully treated without any loss of weight.

5. Dietetic mechanical treatment is to be preferred to all other therapeutic measures.

### **3. Treatment of chronic heart disease by baths and exercise.**

In Great Britain but little attention has hitherto been paid to the system of treatment of chronic diseases of the heart introduced at Nauheim several years ago by A. and T. Schott. During the past year (1894), however, two papers have been published by English physicians on the subject. The first of these was by **W. Bezly Thorne** (*Lancet*, May 5, 1894), who gave a lucid description of the system, together with details of severe cases which had undergone the treatment. He writes in warm terms of approval of the method, and considers that before long it may be “accorded a place in the limited ranks of specific remedies.” Its important feature is that the amount of exercise and baths may be regulated “in such a way as not only to avoid injury to that organ, but to endow it with such recovery of function and repair of tissue as may constitute it actually or practically sound.” The baths of Nauheim contain about “ $1\frac{1}{2}$  per cent. of chloride of sodium, with about the same amount per thousand of chloride of calcium, salts of iron, a proportion of natural carbonic-acid gas made to vary according to the circumstances of the case, and possess a natural temperature of from  $86^{\circ}$  to  $88^{\circ}$  F.” Artificial substitutes may be employed with nearly if not quite the same effect; the strength, duration, and frequency may be increased as the treatment proceeds, with reduction in the temperature. Each bath is followed by an hour’s rest in the recumbent position, careful observations being taken of the patient’s general and circulatory condition after each bath. The baths act as a cutaneous stimulant, amounting in the case of the stronger effervescent baths to rubification, producing a sense of refreshment, improved appetite and gain in weight. They diminish the frequency of the pulse and increase its strength, stimulating the peripheral circulation, and relieving congested viscera. In a healthy subject with a normal pulse-rate of 78 to 84, this was reduced by the bath to 60 to 64, rising in ten minutes from 66 to 68. The exertion of dressing raised it to 76-78, but after a walk of  $\frac{3}{4}$  mile and assuming the recumbent position it fell to 62-66.

The exercises termed *Widerstandgymnastik* consist of certain movements of the limbs made by the patient and opposed by an

attendant, the degree of resistance offered to them and their duration being regulated by the state of the patient, who is directed to breathe slowly and regularly during the exercise, and to warn the attendant of any sign of palpitation. The area of cardiac dulness and the character of the pulse are observed before and after the exercise. The force of the pulse is strengthened and its rate slowed, although the latter effect may not be at once observed; whilst the area of dulness is appreciably diminished, in some cases even after 20 minutes or half an hour. Thus the action of the baths has a more direct and immediate effect in retarding the pulse than has the exercise, which, however, acts more directly in causing contraction of the heart. The gain may not be permanent from the first, but the daily repetition of the treatment generally eventuates in a permanent gain. Coincident with these changes there is probably also diuresis, and, if the liver has been enlarged from congestion, a manifest reduction in its size. The action of the baths is explained as being mainly due to their effect on the nervous system, as shown in the striking trophic effects produced in other classes of disease, as anæmia, wasting, neurasthenia, and osteoarthritis. Schott also thinks the nervous stimulation may be heightened and maintained by absorption of some of the constituents of the waters and of their carbonic acid. It is suggested that the contraction of the dilated heart is not merely due to an increase in the rate of outflow of blood from the heart, but that the cardiac ganglia are excited by the regular movements. There is no restriction of the amount of fluids taken by the patients. The treatment has been applied to all forms of chronic heart disease accompanied by dilatation, and the evidence of diminution of the cardiac area may further serve as a diagnostic test of dilatation from hypertrophy or pericardial changes. Prognosis, too, is assisted by observing the rate at which the precordial dulness yields to treatment. Details of seven cases subjected to the treatment are furnished, and tracings of the precordial dulness before and after treatment—in each instance showing notable diminution—are given of four of these.

At the Bristol meeting of the British Medical Association, **Wethered** drew attention to "The Treatment of Chronic Diseases of the Heart by Baths and Gymnastics as Practised at Nauheim" (*Brit. Med. Journal*, Nov. 10, 1894). From a personal visit to this health-resort he felt convinced that a most valuable therapeutic measure was offered by the special means there adopted.

The baths contain certain mineral salts in solution, chiefly chloride of sodium (2·8 per cent.) and chloride of calcium (0·2 per cent.), the chief characteristic being the large amount of carbonic



acid contained, partially combined with the salts and partially free.

On a diseased heart the effects of the baths are very marked. The number of beats per minute is decreased, irregularity disappears, the volume of the pulse becomes greater, and its general character steadier and quieter. The respiration becomes slower and deeper, and great relief is experienced to the subjective symptoms.

The "gymnastics" or "exercises" which Wethered laid particular stress upon are those introduced by the brothers Schott. They consist of certain movements of the arms, trunk and legs—extension, flexion, and rotation. Each exercise is made extremely slowly and regularly, and is resisted by the doctor or trained attendant. The force exerted to resist the movement is carefully regulated according to the condition of the patient. The effect of the movements upon the heart is as marked as in the case of the baths. The pulse becomes more regular, and its volume increases; but what is more remarkable, the rate is also diminished. After the exercises, too, the area of cardiac dulness will be found to have considerably diminished, this decrease after a time becoming permanent.

As regards the class of cases most suitable for Nauheim, cases of dilatation of the ventricles, with or without valvular lesions, do especially well; as also do patients suffering from tachycardia of nervous origin. Cases of angina pectoris also improve rapidly under a course of the exercises. The cases to be avoided are those of aneurysm, and those in which there is an *advanced* degree of arterio-capillary fibrosis.

With the permission of Dr. Douglas Powell, Dr. Wethered attempted to treat one of the former's patients at the Middlesex Hospital by means of artificial Nauheim baths, and with considerable success, the components of a 50-gallon bath (temperature 92° F.) being common salt 10 lbs., chalk 2½ lbs., and 5 lbs. by weight of pure hydrochloric acid.

The Schott exercises, when once learned, can of course be practised anywhere.

Huchard (*Journal des Praticiens*, Aug. 1, 1894) does not agree with Schott that it is permissible, even with the greatest precaution, to submit the subjects of angina pectoris to the "balneo-mechanical" treatment, no more than that this method should be applied in case of arterio-cardiac sclerosis with high arterial tension, which is recognised by Schott himself as a contra-indication to it. But for simple cardiac dilatation, or dilatation from fatty degeneration of the myocardium, mitral disease with recent failure of compensation

and "cardiopathies" which have resisted digitalis, Huchard believes that such methods of "reduction and muscular excitation" (introduced by Corvisart, Stokes and Corrigan, and re-introduced by Oertel) deserve attention. Oertel and his followers are wrong in applying to all myocardial degenerations the treatment by muscular exercise, climbing and a diet of restricted liquids with excessive meat. For it is inapplicable in cases of commencing sclerosis, increasing the existing hypertrophy, and irrational by neglecting to take count of the dyspnœa of effort and the need for rest of organs; and it may be harmful or dangerous in cases of muscular degeneration, when it may even lead to dilatation. As regards diet, the prescription of abundant meat as food instead of milk overlooks the liability to induce a toxic dyspnœa. Huchard then gives a detailed account of the Schott method, which need not be repeated (*vide supra*), and for which he avails himself largely of the description by Moeller (*Du traitement des maladies du cœur par la méthode des Drs. Schott de Nauheim*, Bruxelles, 1892).\* He shows that balneo-therapeutics in chronic heart-disease has not been neglected in France, which possesses mineral springs which if not precisely of the composition of those at Nauheim may be usefully prescribed for the same purposes. So long ago as 1845, Dufraisse of Chassaigne had spoken of the good effects in chronic endocarditis of rheumatic origin from the waters of Chaudes-Aigues and Saint-Nectaire, and in 1851 called attention to the value of those of Bagnois-de-la-Lozère in cardiac cases, an opinion since confirmed by others. Bagnois, unfortunately a high station (860 metres above the sea-level), contains six springs of sulphur-soda waters; the chief of which, having a temperature of 41·7° C. (107·3° F.), was discovered in 1769. Their value has been variously explained; viz., by their thermal effect and action on the peripheral circulation; by improving the nutrition of the heart; or indirectly by relieving catarrh and bronchitis. Again, the springs of Bourbon-Lancy (Saône-et-Loire), which, like those of Nauheim, contain chloride of sodium and free carbonic acid, with a temperature of 55° to 61° C. (131° to 142° F.), may advantageously replace the latter. Taken

\* The following references to the writings of the brothers Schott are given:—*A. Schott*: "Beiträge zur physikalischer Diagnostik des Herzens" (*Centralbl. f. med. Wissensch.*, 1881; "Bedeutung der Gymnastik f. Diagnose, Prognose, und Therapie der Herzkrankheiten," 1885. *T. Schott*: "Die Hautresorption und ihre Bedeutung für die Physiologie der Badewirkungen" (*Deutsch. med. Zeitung*, 1885; "Die Behandlung der chronischen Herzkrankheiten," Berlin, 1887; "Pathologie und Therapie der Angina Pectoris," Berlin, 1890; "Zur acuten Überanstrengung des Herzens," Wiesbaden, 1890; "Differential-Diagnose zwischen Pericardial-exsudat und Herz-dilatation," 1891; "Ueber Herz-neurosen," Leipzig, 1892.



internally they have a marked diuretic effect, and eliminate uric acid. The iodo-bromated waters of Bandonneau (Drôme) and of Balaruc are indicated in arterio-sclerosis; those of Brides and Chatelguyon may rank with the Marienbad springs so strongly advocated for "cardiac adiposity;" whilst for their diuretic action such springs as those of Evian, Martigny, Vittel, and Contrexéville may well be given to "arterial cardiopathies." Finally the waters of Bagnoles de l'Orne (thermal, chloride of sodium and sulphur) are useful for their slightly stimulating action on the circulation. Huchard calls attention to these springs to show that it is not necessary for the subjects of cardiac disease in France to undertake long and fatiguing journeys to undergo a course of appropriate balneology. He lays stress on the fact that in many cases of cardiac disease it is important to look beyond the derangement of the organ itself, to the large class of cardiopathies associated with arterial changes. He sums up as follows:—"I have wished to show that gymnastics, and above all mineral waters, are not always, as has been too long thought, contra-indicated in chronic heart-disease. They have, on the contrary, their special indications, capable of acting very favourably in *valvular* affections, especially at a time as near to their period of origin as possible, and even at their period of commencing hyposystolism. As regards *arterial* cardiopathies, where the indications not being similar, the choice of waters should be different, bath medication may produce striking results, prevent grave complications, and ensure renal action, always more or less embarrassed in these diseases."

### III.—CARDIAC TONICS.

#### 1. Comparison of action of digitaline and digitalis.—

F. Pfaff (*Arch. f. exp. Path. u. Pharmakolog.*, Bd. xxxii., Abstr. in *Fortschritte der Med.*, 1894, April 15), made an experimental investigation upon the action of *Digitalinum verum* upon the circulation and renal secretion as contrasted with that of infusion of digitalis. Intravenous injections were made in the rabbit, dog, and cat, and observations taken of the rate of urinary secretion and the changes in the circulation. In the rabbit the two preparations corresponded in their action, both qualitatively and quantitatively. It was, however, noted that in this animal, which is very tolerant of digitalis, diuresis only occurred under small and moderate doses with rising blood-pressure; whilst it ceased absolutely when under larger doses the blood-pressure fell. In

the dog no diuresis was established with either preparation, although the blood-pressure was readily raised. In the cat the blood-pressure was but slightly influenced, but there was a ready diminution in the rate and volume of the pulse. Small doses of digitalin caused slight diuresis, whilst doses above  $\frac{3}{4}$  milligr. caused a diminution in the flow of urine, and produced toxic symptoms. Such results show how variously different species of animals respond to the same drug, and how cautious should be any generalisation upon pharmacological action based on observations made on one kind of animal alone. Pfaff also made numerous bedside observations on man, with the result that digitalin was found to act both as a diuretic and on the circulation, similarly to infusion of digitalis, and, as the dose of the former can be more certainly regulated, he thinks that its prescription should be preferred.

N. Stoitscheff (*Deutsch. Archiv f. klin. Med.*, Bd. 52, 5 & 6 Heft, April, 1894) has also made a comparative study of the action of *Digitalinum verum* and *infusion of digitalis*. The digitalin was given in alcoholic solutions according to the formula: digitalini veri, 0·08; sp. vini rectific., 20·0; aq. destill., 180·0. The cases are related in full detail, especially with regard to the influence of the drug upon the pulse. In a first series of 13 cases, comprising mostly cardiac disease—valvular and myocardial—the action of digitalin was uniformly to lower the pulse-rate and improve the general condition; but in a certain number a further exhibition of the drug produced no change in the pulse. To determine whether the infusion of digitalis might succeed in such cases (although it is well known to fail occasionally) from the action of other bodies than digitalin was the object of the comparative study referred to.

There are 13 cases recorded in which the two forms of the drug were given at different times. Amongst them there are 10 in which the infusion had no, or only an unimportant, action. In one case the digitalin had no effect, whilst the infusion acted, its effect lasting, however, only a short time; and on the second resort to digitalin this produced a marked fall in the pulse-frequency. In another case where the infusion seemed to succeed where digitalin failed, a decline in fever coincided with the termination of the period of administration of the latter. In a third case, the infusion seemed to supplement the effect already produced by digitalin; but here again another factor coincided with the end of the administration of the infusion, viz., the termination of an attack of delirium tremens. It would seem to be preferable to give digitalin in small repeated doses rather than in large



doses at long intervals; and, although often given for a long period, no cumulative effect was observed.

Quite a contrary result of the comparative efficacy of digitalinum verum and the infusion of digitalis is recorded by Klingenberg (*Archiv f. exp. Path. u. Pharmacolog.*, Bd. 33, 4 u. 5 Heft.—May, 1894). He remarks that this digitalin (for there is more than one variety known to pharmacologists) was prepared by Schmiedeberg, who found that all other kinds of digitalin were more or less mixtures of active and inactive substances, and his aim was to produce a principle which should have the properties of digitalis, but of more certain composition than the infusion of the leaves, and free from liability to produce other disturbances. Pfaff administered the digitalin in alcoholic solution as being more readily absorbed than in the form of pills, which were employed by Klingenberg, and the inability of the latter to corroborate Pfaff's favourable results might be attributed to this difference in mode of administration. The difference is, however, striking. Eighteen patients, the majority of whom were suffering from uncompensated valvular lesions, were treated with digitalinum verum, at an average daily dose of 0·01 to 0·015 gramme for the earlier treated cases, and of from 0·004 to 0·006 for the later ones. The single dose was 0·002 gramme, the amount given daily, varying according to the frequency of its administration. With few exceptions each patient was also treated with infusion of digitalis—a sufficient interval being allowed to exclude the possibility of the one preparation influencing the other; and, where the case permitted of it, a few days of expectant treatment preceded resort to the specific remedy. In each case pulse-tracings were taken by Jaquet's Sphygmochronograph. The general result is summed up as follows:—

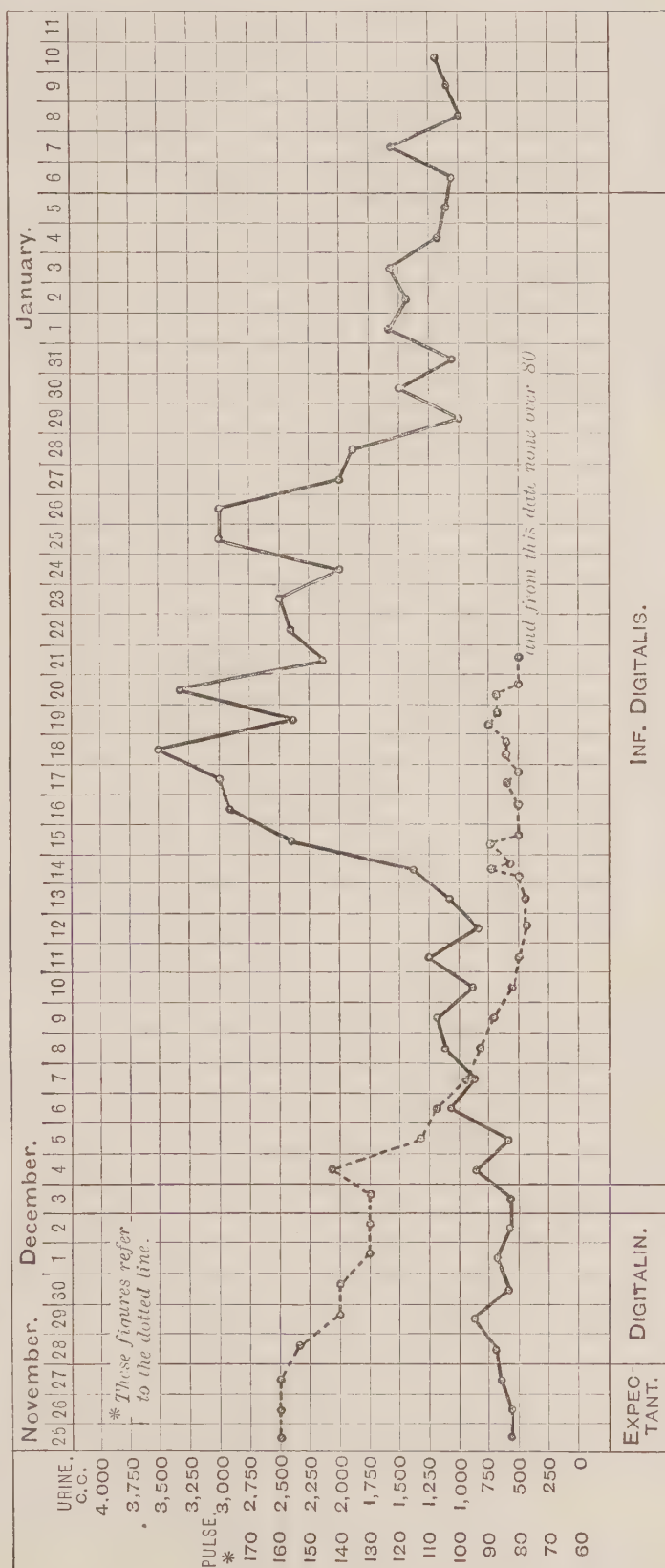
1. Digitalinum verum is superior to infusion of digitalis leaves in its more certain dosage and absence of accidental symptoms.

2. There is no doubt that it has a certain effect on the pulse in mild, compensated cases of valvular heart disease.

3. In all severe uncompensated cases of valvular heart disease, it cannot approach digitalis infusion.

Klingenberg says that it is possible that a greater familiarity with the drug might have yielded better results, and that one would hesitate to give up a remedy which has been supported by such powerful testimony. However, apart from Pfaff's work, he knew of no other observations on digitalinum verum; and although he could not confirm Pfaff's conclusions, he thought it well to publish his results, which speak so favourably

for the infusion of digitalis. From the series of cases (which appear in detail in his inaugural dissertation, Strassburg, 1893), he selects two, which are illustrated by tables, charts, and pulse-tracings, that clearly justify his conclusions. The first case was that of a man at 28, under treatment from November 25, 1892, to January 10, 1893, for mitral disease and dropsy. For the first three days the treatment was expectant; the pulse-rate being 160, and the daily quantity of urine from 550 to 630 c.c.; from November 28 to December 3, digitalin was given, with very slight effect on the pulse and flow of urine; from December 4 to January 5, he was given



INF. DIGITALIS.

DIGITALIN.

EXPEC-  
TANT.

CHART 1.



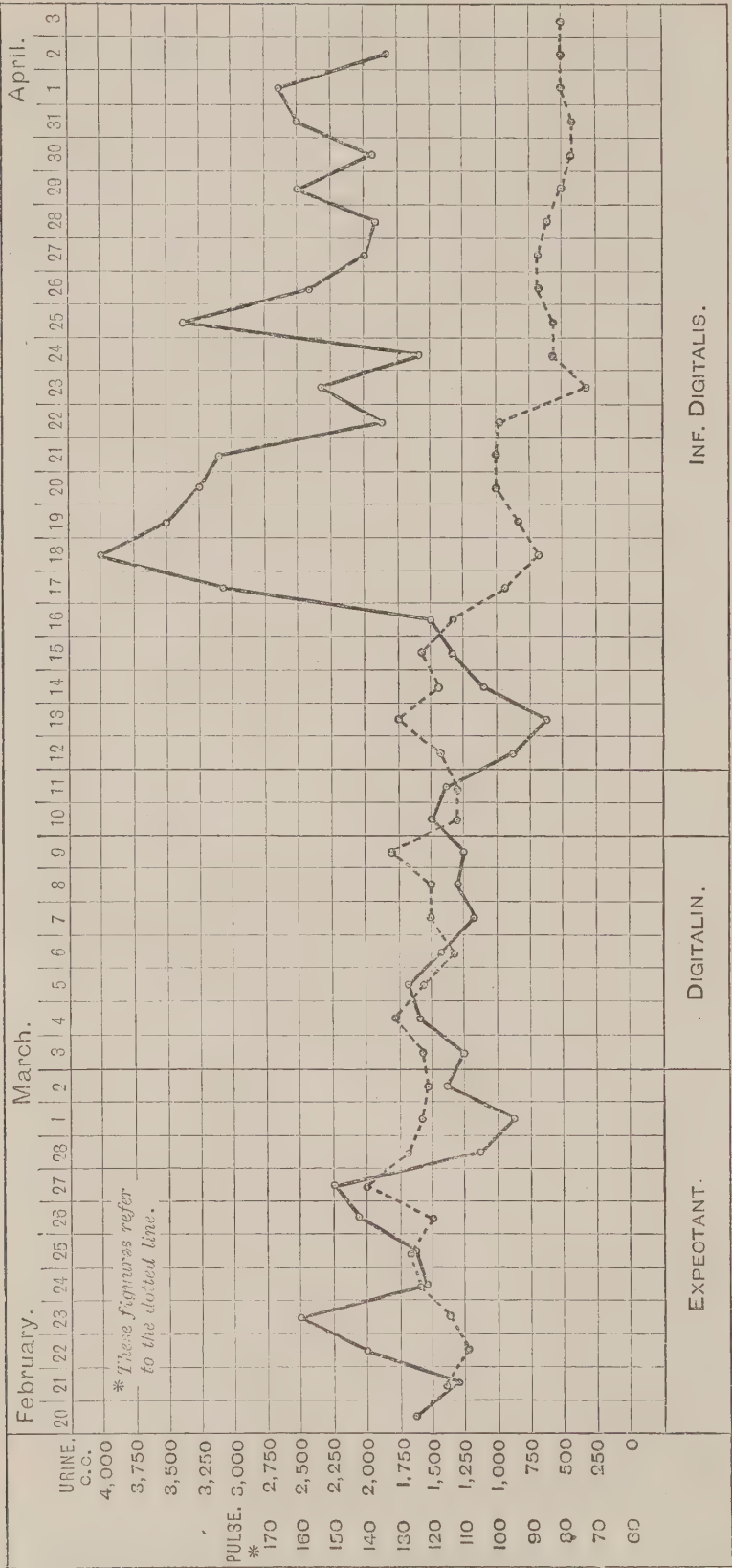


CHART 2.

infusion of digitalis, and in a few days the pulse became appreciably slower, and diuresis became established, the maximum quantity of urine (3,500 c.c.) being passed on December 18th. The accompanying chart (No. 1) shows the daily variations noted in these respects. Sphygmographic tracings showed that under the digitalin the pulse increased in force, but was also hyperdicrotic; but that under the infusion of digitalis it became more regular and normal. On the other hand,

although he had as much as 0.68 grm. of digitalin in five days, no gastric disturbance was caused by it, whereas the digitalis infusion produced eructations and abdominal pain. The other case was a man aged 60 years, suffering from mitral regurgitation, with dyspnœa, but no dropsy. The comparative effect of the drugs on pulse and urine was similar to that in the previous case, as shown in chart No. 2. The general condition grew worse when taking digitalin, when, too, the diuresis became low, and some dropsy appeared.

**Digitalinum verum.** The following abstract (*Fortschr. der Med.*, No. 10, 1894), by Von Boltensern, of an article in the *Therap. Monatsh.*, Nov., 1893, may be of interest in connection with the foregoing :—

“Digitalinum verum, pure digitalin, is a white amorphous powder, hygroscopic, and readily soluble in water, less so in alcohol, and not at all soluble in chloroform and ether. Physiological experiments on various animals by Boehm, of Leipzig, and by Pfaff in Schmiedeberg’s laboratory at Strassburg, showed that digitalin in small and moderate doses causes a rise of blood-pressure and diuresis, whilst large doses produce a cessation of the diuresis in spite of increase of blood-pressure as well as the absence of any locally irritating or inflammatory properties. In patients digitalin acts equally well with infusion of digitalis upon the circulation and diuresis. Here, too, no increase of diuresis occurs after larger doses with heightening of the blood-pressure. Subcutaneous injection was very painful, but did not lead to any ill effects or abscess-formation. Mottes (Munich) gave  $\frac{1}{4}$  milligramme every two to three hours. Pfaff, for increasing diuresis, gave 2 milligrammes three to six times daily, or 4 milligrammes two to three times; and for rapidly relieving the circulation from cardiac difficulty, 6 milligrammes four to six times daily. The amount of digitalin prescribed is most suitably given dissolved in concentrated alcohol, the solution being diluted with the desired amount of water. For subcutaneous injection a solution of 5 milligrammes of digitalin in 1 cub. centim. of dilute alcohol, with the addition of some cocaine, is recommended.”

## 2. The cumulative action of digitalis.

An editorial in the *Therapeutic Gazette* (Sept. 15, 1894) criticises the statement by Beaumont Small, in the article “Digitalis” contributed by him to the supplementary volume of *Buck’s Reference Handbook of the Medical Sciences*—that “a cumulative action in the sense of an accumulation of the drug in the system, followed by an outburst of increased action, is no longer feared; no such condition occurs. Toxic symptoms arise only from an overdose, or from its prolonged administration, and the condition of poisoning is preceded by its regular train of symptoms.” But, the author of the critique points out, the question is not whether digitalis produces toxic symptoms after prolonged administration; it is whether the drug is capable of being administered for 24 or 48 hours without effect, and then to be able suddenly to develop its full influence. In the first place, it has an action on the heart which lasts for a very long



period of time after its discontinuance ; and there is evidence to show that these effects may *increase* after it has been discontinued. It is pointed out that there are two conditions in which it is especially likely to exert this cumulative action. In cases of ascites, when digitalis has been given in moderate doses, the withdrawal of the fluid by paracentesis may be followed by a heightened action of the drug ; and so also in cases of anasarca, which have been relieved by purgation. The other condition is that of high fever, for as **Lauder Brunton** pointed out, digitalis fails to exert its ordinary influence on the heart if the temperature be above  $103^{\circ}$  ; but when the pyrexia declines, the effect of the drug is very marked.

### 3. Caffeine in cardiac and renal diseases.

**Pawinski** (*Zeitsch. f. klin. Med.*, Bd. 31, II. Heft., 5 u. 6, 1893) has studied the action of caffeine in cardiac and renal diseases, with the aim of rendering the grounds for the prescription of the drug more definite than they have hitherto been. He employed the combinations of caffeine with benzoate of soda (containing 45·8 per cent. of pure caffeine), or with salicylate of soda (containing 61·6 per cent. of pure caffeine), in preference to the pure drug. From their solubility and constancy, these compounds are useful for hypodermic medication. His monograph deals in turn with carefully recorded and full observations on cases of (a) valvular heart disease ; (b) renal disease ; (c) valvular disease, complicated by renal affection ; (d) diseases of the heart-muscle and the coronary arteries. It must suffice here to summarise the conclusions at which he has arrived. (a) Caffeine is obviously not indicated unless there be failure of compensation, and even in such a case, especially if there be irregular action of the heart and pulse, as often happens in mitral stenosis, caffeine should be withheld until digitalis or strophanthus has been tried and found ineffective. Under the use of caffeine, after from 6 to 12 days' treatment, there is noted an increase in the cardiac energy, a decrease in the transverse heart dulness, and a diminution of œdema, usually accompanied by increased diuresis. In this latter respect caffeine may even surpass digitalis and strophanthus ; but having no specific action on the vagus nerve, it is inferior to these drugs as a regulator of the cardiac rhythm. This is especially seen in mitral stenosis, where the action on the vagus aids in a more complete filling of the left ventricle ; and in the first case here recorded, a few days' course of digitalis equalised the difference (previously very great) between the beats of the heart and of the pulse, whereas caffeine administered for ten days had no such effect, the heart beating still more

frequently than the pulse, and not regaining its regularity of action. Similarly in a case of aortic insufficiency, where œdema, dyspnœa and signs of cardiac failure arose, the replacement of digitalis by caffeine did not have so good a result as the digitalis, although its diuretic action was evident. It would seem, then, that in valvular disease the use of caffeine should be restricted to a later period, after the heart has regained its power under the action of the ordinary cardiac tonics. It is well to commence with small doses, especially in neurotic subjects, whose tolerance for the drug is not determined. Since the effect of digitalis diminishes the longer it is administered, caffeine may replace it from time to time; and occasionally, in weakly subjects and old people, for whom a nervine stimulant is needed, the two drugs may be given in combination.

(b) Caffeine is useful in chronic interstitial nephritis, when the hypertrophy of the left ventricle passes over into dilatation or when the cardiac power is defective. In such cases anasarca sets in, the urine decreases, dyspnœa occurs, and the pulse becomes irregular, whilst the area of cardiac dulness attains a wide extent, mainly towards the right. Here again, caffeine had better be delayed until after a trial of digitalis or strophanthus. In several cases with marked failure of the heart-muscle the long-continued use of caffeine produced striking improvement in regulating the circulation and the renal secretion. Caffeine by its tonic influence on the circulation, and especially on the renal vessels, may be given in parenchymatous nephritis with much œdema and scanty urine, apart from any cardiac disorder—cases in which digitalis may be of no use. But, in other cases associated with extensive dropsy and failure of nutrition, it may be found of no avail; then, quinine, iron, and measures to improve general nutrition, are alone of service. Caffeine, too, may sometimes be given with good effect in the later stages of acute nephritis with general dropsy, scanty urine, and bradycardia (40 or 50 beats per minute), due probably to the action of the retained material upon the nervous system; and headache may foreshadow the onset of uræmia. Digitalis, which at first would strengthen the heart and raise the pulse-frequency, is unsuitable, as it soon leads to further slowing of the pulse; whereas caffeine not only stimulates the heart to more frequent action, but the whole vascular system, increases the secretion of urine, and averts the threatened danger. Still, there are cases in which it has no such effect. (c) In cases of valvular disease complicated by acute renal inflammation—*e.g.*, after scarlet fever or diphtheria, digitalis is to be preferred to caffeine. (d) It is in the treatment

of affections of the heart-muscle, functional as well as degenerative, that caffeine yields the best results. It is far preferable on many grounds to digitalis in the treatment of cases where attacks of dyspnœa, sense of constriction, excessive cardiac action, denote a failure of the heart to do its work, before any marked evidence of dilatation or any œdema has appeared. The value of caffeine in such a case lies in the promptness of its action as compared with digitalis or strophanthus; it may be given hypodermically or by the mouth, and, if necessary, in full dose. As the disease advances, however, and the signs and symptoms of dilatation arise, digitalis is to be preferred; although, in the intervals during which it is well to remit this drug, caffeine may be given with advantage. Yet again, when digitalis no longer excites any response, and pulmonary œdema is supervening, a resort to caffeine may restore the failing power of the heart, promote diuresis, and relieve or banish the dropsy. One indication for the employment of caffeine is in the later stages of myocardial disease, especially that dependent on sclerosis of the coronary arteries, when dyspnœal attacks, or irregular breathing, perhaps of the Cheyne-Stokes type, occur. Caffeine seems to excite the respiratory centre in the medulla and to dispel these disquieting symptoms. The drug is also of service in *acute* cases, when cardiac insufficiency arises in individuals who have previously been healthy and had no circulatory disorders. Such conditions may arise after physical overstrain, severe moral shock, or, more frequently, in the course of fevers, as typhus, pneumonia, scarlet fever, diphtheria. The febrile state impairs not only cardiac innervation, but excites changes in the muscular fibre and interstitial tissue, which may produce collapse and fatal syncope. A prompt recourse to the subcutaneous injection of caffeine may then save life. A case is mentioned of a boy 10 years of age, who, on the 5th day of scarlet fever (temp. 104° F.), complicated by severe pharyngeal diphtheria, suddenly became cyanotic and pulseless, with loss of consciousness; when seen, the heart was acting irregularly and feebly, the breathing superficial, the extremities cold. After three injections of a strong solution of caffeine, consciousness returned, the heart's action was restored, and the pulse could once more be felt. He subsequently recovered after a severe illness. Sometimes, after paracentesis for pleural effusion, urgent cardiac symptoms arise, probably from the changed conditions within the thorax. There may be profuse albuminous expectoration, failure of the pulse, and cyanosis. Here, again, injections of strong solutions of caffeine are of great service.



#### 4. The action and prescription of caffeine.

Pawinski (*loc. cit.*), in his paper on caffeine in cardiac and renal diseases just referred to, has some additional remarks on the general action of this drug. He states that animal experimentation as well as clinical experience points to the fact that the action of caffeine is mainly that of a nervine stimulant. It is through the nervous system that it increases the power, and sometimes regulates the rhythm of the heart. But, unlike digitalis and strophanthus, it has no specific action on the inhibitory nerves, and there are differences of opinion, especially among physiologists, as to the precise influence it exerts on the heart. In its action on the cerebro-spinal centres it resembles strychnine; and the immediate effect of its direct injection into the blood is to lower blood-pressure and quicken the pulse, effects which rapidly pass away. In healthy individuals and in patients free from circulatory disorder, it quickens the pulse some beats in the minute, but in cases of cardiac disease, especially valvular defects, there may be less frequent though more powerful contractions, the slowing of pulse being neither so marked nor so continued as after strophanthus or digitalis. Caffeine has a marked influence upon the vaso-motor centres, so that the vessels contract and the blood-pressure rises. Clinical observation shows that the blood-pressure is raised as high as or even beyond that obtained by digitalis, as shown in sphygmographic tracings. There can be no doubt as to its diuretic action when cardiac or renal disease is in question, but opinions are divided as to its having any special effect on the kidney in health. In heart disease it is in the later stages that its diuretic action is best marked, digitalis being used in the earlier stages. Clinically, diuresis after caffeine is invariably associated with rise in blood-pressure, a fact which does not support the view that it acts directly on the renal cells. In cardiac cases it is sometimes an advantage to combine morphine and caffeine, *e.g.*, in angina pectoris with weak heart, or severe dyspnoea. Indeed, sometimes in cardiac and renal disease caffeine acts as a narcotic, and this is also true of the insomnia and nervous depression that follow influenza. Its action is not cumulative, the drug being rapidly eliminated by the urine, but it is possible by too large a dose to over-excite the nervous and circulatory centres; and in alcoholics it has been known to induce cerebral excitement amounting to mania. Diarrhoea may occur after its long-continued administration, which rapidly disappears on its discontinuance. As to *dose*, Huchard and Lépine have shown that large doses, *i.e.*, 1 to 2 grammes, or 2 to 5 grammes of pure caffeine *per diem* are well borne. Petresco of Bucharest has seen good results from

daily doses of 2 to 4 grammes. Pawinski, preferring the slightly soluble salts, caffeine-soda-salicylate, and caffeine-soda-benzoate, prescribes them in powder in a dose 0.258 gr. of the former and 0.3 gr. of the latter.

The caffeine may be given in solution as:—

R Caffeine benzoate of soda	...	...	...	...	4.0	gram.
Distilled water...	...	...	...	...	150.0	
Liquorice	...	...	...	...	30.0	
M. $\frac{1}{2}$ to 1 tablespoonful 3 to 6 times a day.						

In severe cases it may be combined with digitalis and camphor.

R Caffeine benzoate of soda	...	...	...	0.18 to 0.3	gram.
Powdered digitalis leaves	...	...	...	0.06	
„ camphor	...	...	...	0.03	
White sugar	...	...	...	0.12	
Divided into 12 cachets, of which 4 may be taken daily.					

The average daily dose may be 1.25 to 2.0 grm. of caffeine benzoate of soda, 1.5 grm. of caffeine salicylate of soda, and 0.6 to 1.0 grm. pure caffeine. If in cardiac or renal disease the drug produces no effect after 6 to 8 days' administration, no further result may be expected by increasing the dose, which, moreover, would probably excite nervous and circulatory disturbance. For hypodermic injection in cases where a rapid effect is required, a solution of the soda-benzoate salt (4 to 20 of water) or of the soda-salicylate salt (3 to 20 of water) may be injected, 10 to 20 minims for a dose. The more urgent the symptoms of cardiac paralysis, the larger must be the dose. Lastly, if the stomach is intolerant of the drug it may be given in the form of a suppository made up with cacao butter.

### 5. The use of atropine in bradycardia and irregularity of cardiac rhythm.

Karl Dehio (*Deutsche Arch. f. klin. Med.*, Bd. 52, 1 u. 2 Heft., October, 1893) affords an *experimentum crucis* to a discovery by R. Heidenhain (*Pflüger's Archiv*, 1872) that irregularity of the heart's action (arrhythmia) can be excited apart from any influence of the vagi nerves, viz., by an increase of the blood-pressure through electrical stimulation of the medulla when both vagi are divided, and that when the pressure is raised sufficiently to cause marked acceleration of pulse; but, short of producing irregularity, the latter can be brought about by faradism of the peripheral end of the divided nerve. Amongst cases of bradycardia during convalescence from acute disease, upon which Dehio contributes another paper to this number of the *Archiv*, there were two in which the slow pulse was also irregular. The pulse became regular when a subcutaneous injection of atropine

was administered, *i.e.*, inhibiting the action of the cardiac fibres of the vagus, the irregularity disappearing as the effect of the atropine wore off. In these cases the arrhythmia was slight and transient, ceasing with the complete restoration of the patient to health. He observed the same effect in another case of irregular action of the heart, its rate being noted by auscultation at intervals throughout nearly an hour after atropine had been injected. Prior to the administration of the drug, the pulse-frequency was variable, sixty-eight to ninety, some four or five beats being bigeminal, and one complete intermission occurring within the minute. The atropine caused the pulse to become regular and more rapid, without any intermittence, and only now and then bigeminal. The last-named character was very marked five minutes after the injection, *i.e.*, in the period of vagus stimulation which precedes the atropine paralysis; thus, whereas Heidenhain was able to excite arrhythmia by stimulation of the vagus, these cases showed that paralysis of the vagus by atropine could make arrhythmia disappear; but this effect is not invariable—it occurs only in slight cases when the irregularity consists in occasional double beats and intermittence. For in severe cases, such as are denoted by the term “delirium cordis,” atropine has no influence at all on the frequency and rhythm of the heart-beat, and may even increase the irregularity; this goes to show that in the last event the cause of arrhythmia is to be found, not in the action of the vagus, but in the automatic apparatus of the heart itself. Such cases, too, are the clinical counterpart of Heidenhain’s other observation, *viz.*, that rise in blood-pressure, if sufficient in degree, will, *per se*, make the heart’s action irregular, when the vagi are no longer operating. Dehio sums up his own experiences, thus: Slight degrees of arrhythmia and slight bradycardia may be temporarily diminished or removed by atropine. Severe cases, if of cardiac origin, equally withstand the action of this alkaloid. As in bradycardia of cardiac origin, so also in well-marked cases of irregular heart’s action, the frequency of the heart-beats is not increased by atropine.

#### **6. Meat extract as a cardiac tonic.**

Kemmerich (*Berlin. klin. Woch.*, No. 10, 1894) has studied by means of Von Frey’s sphygmograph the effects on the pulse of meat-peptone, which was given in the proportion of 30 grammes to half a cup of water with a small quantity of salt added. The tracings, several of which are reproduced in the paper, were taken before, and at intervals of  $\frac{3}{4}$  of an hour, 2 and 3 hours after, the taking of the food, and the cases com-



prised anæmia, cancer of the stomach, enteric fever, chronic tuberculosis, stricture of the œsophagus, and a convalescent from pleurisy. It is claimed that the peptone acts as a cardiac tonic, the pulse mostly becoming slower and tenser; whilst the increased height of the percussion wave in the tracing indicated a more powerful ventricular systole. The action of the peptone is best marked three-quarters of an hour after it has been taken, but the effect has been noted within a quarter of an hour, whilst it gradually disappears in six hours. It is pointed out that so-called "Kemmerich's meat peptone" contains from 57 to 60 per cent. of proteids, viz., about 30 per cent. albumen, 18 per cent. of peptone (Kühne), and from 9 to 12 per cent. of other soluble albumens; besides this it contains the aromatic products of the meat, and from 8 to 10 per cent. of salts (phosphates and chlorides), elements which are easily absorbed and act as circulatory and nerve-stimulants. The effect of the peptone in raising the arterial pressure may explain the slightly diuretic action that it seems to possess.

#### IV.—CARDIAC ASTHENIA.

##### **Cardiac asthenia and its treatment.**

In a paper on "Cardiac Asthenia and Heart Exhaustion" (*Amer. Jour. Med. Sci.*, April, 1894), J. M. Da Costa deals with a class of cases of long-continued feeble action of the heart not coming under the ordinary categories of degeneration, toxæmic, or anæmic states, but "due either to nervous failure or to a weak heart-muscle." In the *nervous* group there is generally a history of worry or overwork, and the affection may first show itself by sudden cardiac collapse. Sitting up may produce a sense of swooning, or there is actual fainting from time to time. The heart's action is feeble, the pulse very small and compressible, generally increased in frequency, precordial uneasiness, cold extremities, poor capillary circulation, pale urine. The breathing is unaffected. The appetite is poor, the bowels constipated. There may be insomnia, and often mental depression. Cases in illustration are given, and it is remarked that there is seldom irregular action of the heart, but acceleration of its beats, which are strikingly increased by exertion. The impulse is feeble, the first sound short, the second not accentuated. "The cardiac malady is throughout neurosal rather than vascular," and is more probably dependent on disturbance of the cardiac ganglia than of the medullary centre or vagus. A case is given in which the condition preceded the onset of diabetes. The affection is more common in men, and it is very like the condition induced by the

abuse of tobacco. The second group, that of *inherent muscular weakness*, is not so common as the nervous form, and is much more persistent. In addition to the signs of feeble circulation, there is shortness of breath, especially on exertion, and often slight transient œdema of the ankles. Da Costa has endeavoured to ascertain whether the sphygmograph can assist in differentiating these groups of cases, but so far with no satisfactory result. "The sphygmographic tracings in the nervous asthenic heart show a line of ascent not high and apt to be oblique, a rather sharp summit, and irregularity in the descent. In the weak muscular heart the upstroke is apt to be straighter, the irregularities in the diastolic period yet more marked. In either, the low tension may give rise to considerable amplitude in the upstroke." In the asthenic nervous heart, the prognosis is very good, but in the muscular form there is danger of collapse, especially if the patient be subjected to the strain of acute disease. His remarks upon the treatment of these cases are so valuable that they may be quoted *in extenso* :—

"For the cases of the asthenic nervous heart, rest in bed is at first essential, and, when they are able to sit up, nothing does them so much good as graduated shower baths. Massage, too, may be employed, but many cannot at first bear it, and it comes in better at a later stage of the treatment. It is then, too, that Swedish movements may be recommended, and carefully adjusted exercise, such as walking, or gentle horseback exercise, or light gymnastics. These agents can be resorted to from the start, when the weak heart depends on a weak heart-muscle. From Swedish movements that are especially adapted to promote the flow of blood and to strengthen the heart, I have seen in this class of cases great good. The action of the heart has become distinctly stronger and more regular, and in young persons I believe a permanent curative result may be accomplished. The food should always be as nutritious as possible, taken as frequently, and in amount as large as the digestion will readily tolerate, and stimulants often have to be resorted to. It is astonishing in what quantities they are borne, and temporarily even required, in the nervous heart ; though, for fear of forming a habit, we have to withdraw them as soon as circulation strengthens. The tendency to constipation demands attention, and is to be remedied by means of diet and of light laxatives.

"Among drugs strychnine stands pre-eminent. It is suitable to both the forms of weak heart under discussion. The dose need not be large—rarely exceeding one-thirtieth of a grain three times daily—but it must be continuous. Iron is not called for except when a complication with anæmia exists, or later in

the case as a general tonic, and its tendency to constipate makes it often a doubtful remedy. Arsenic, in the nervous asthenic heart, comes next to strychnine. Its action cannot be explained by its removing anæmia, for it proves to be valuable when the blood-count shows this not to exist. I have the record of one case in which the patient, who also suffered from hay-asthma, began its use for the cure of this, and, finding the arsenic very strengthening to his heart, continued it of his own accord for four months, in doses of one-hundredth of a grain of arsenite of sodium three times daily, with the greatest benefit to his general health and a permanent removal of the heart symptoms.

“Of so-called heart-tonics digitalis is the best, but it is not the certain remedy we might suppose. When we give it in large doses the patient should be kept in bed. In a number of instances it does not suit at all. Strophanthus is generally said to be inferior to digitalis. I have used most of the other remedies of this class in different cases. Adonidin and chloride of barium have done me at times good service; cactus and convallaria have been disappointing. The latter I have ceased to use. Caffeine and cocaine are both valuable, but their action cannot be kept up; from cocaine we would run the risk of establishing the cocaine habit. It is, however, very serviceable during urgent symptoms of failing heart. Nitroglycerine is not of much avail, except there be cardiac pain, or in combination with remedies like digitalis, which act more distinctly on the power of the heart. Bromides, valerian, and opium ought to be left to meet special indications of nervous disturbance.”

## V.—GRAVES'S DISEASE.

The literature of Graves's disease continues to increase, but so far the contributions to the subject have not yet made it clear upon what the remarkable association of symptoms met with in this affection depend. In the Bradshaw lecture (1893) Greenfield advanced very strong reasons—pathological and clinical—in favour of the view that the thyroid function is primarily deranged, and that the several phenomena exhibited are to be attributed to the influence of its perverted secretion upon the nervous and circulatory systems. This view, which was advocated amongst the first by Möbius, has considerable support in the knowledge gained of recent years as to the nature of myxœdema and its treatment by extracts of the thyroid gland. The remarkable contrast between the symptoms of myxœdema and of Graves's disease, which has been drawn attention to by Möbius, Byrom Bramwell, Greenfield,



and others, lends further support to this teaching, the direct outcome of which is the advocacy of surgical interference as a therapeutic measure in Graves's disease.

**A. Eulenburg** (*Deutsch. med. Woch.*, No. 40, 1894) in a paper upon "Basedow's Disease and the Thyroid Gland" \* says that in his work (conjointly with the late P. Guttman) on the Pathology of the Sympathetic (1868 and 1873) he showed that the symptoms could not be attributed to mechanical effect of the enlarged thyroid. The view—elaborated by Möbius—that the symptoms are due to toxic effects of the perverted action of the gland, is not set aside by the fact that there may during life be no obvious enlargement of the organ. The peculiar product of the gland, which plays apparently an important part in nutrition, is secreted in progressively increasing amount in Graves's disease, and probably also undergoes some qualitative change. The alteration in the secretion may be initiated by arterial congestion and hyperæmia of the gland, as well as in derangements of the blood itself, which so often precede and accompany the disease. Eulenburg thinks this view is supported by the results of general tonic treatment, or by operative measures which diminish the amount of secreting tissue.

**Joffroy**, in a lecture given at the Salpêtrière in 1891 (*Le Progrès Médical*, No. 13, 1894), after speaking of the methods of treatment—medicinal, hydrotherapeutical, and electrical—enters into some detail (mainly historical) upon surgical intervention. The first cases of thyroidectomy for exophthalmic goitre are those recorded by **Heron Watson** (*Edinb. Med. Journ.*, Sept., 1873), four in number, in three of which there was exophthalmos. In one of them cure was complete in three weeks.

**L. Rehn** (*Deutsch. med. Woch.*, No. 12, 1894) advocates partial removal of the thyroid in marked cases, which he has done with good result; for he holds that the origin of the disease in the toxic effect of the thyroid secretion is proved.

**H. Reinhold** (*Münchener med. Wochens.*, No. 23, 1894), without giving a complete adhesion to the doctrine of Möbius, yet shows that Mendel's main objection to it on the ground that morbid changes are not invariably found in the thyroid in Graves's disease is not adequate, since the thyroid treatment of myxœdema proves that normal thyroid may produce toxic effects. On the

\* Eulenburg says that Graves was by no means the first (1835) to describe the affection; and thinks that if a precursor of Basedow (1840) is to be sought for, he might be found in Parry, who, however, only met with exophthalmos in one of his five cases. On the other hand, Mannheim, of Berlin, justifies the claims of Graves; whilst Chamberlain—writing in Paris—is equally sure that Basedow should receive the credit of the discovery.

other hand, **Mannheim**, in his monograph (*Der Morbus Gravesii*, Berlin, 1894) finds this theory (of thyroid intoxication) lacking in any explanation of the cause of the perverted function of the gland, and says it is only to be regarded as a "clever hypothesis." His essay is a detailed bibliographical and critical study of the subject, and is of especial value for the records included in it of cases of surgical interference. Out of forty-two such records, he thinks that twenty-six were not true examples of Graves's disease, and he suggests that surgical measures should be limited to cases where the enlarged gland mechanically interferes with respiration and nutrition.

Another but less erudite monograph, by **Chamberlain** (*De la Maladie de Basedow*, Paris, 1894), shows that opinion amongst French physicians is inclining towards surgical measures; at any rate, some remarks by Prof. Marie—no mean authority on exophthalmic goitre—indicate that such measures are justifiable and hopeful. After an enumeration of the various methods of interference that have been advocated and practised, Marie concludes: "All I can say is that I have seen a certain number of the subjects of Basedow's disease die a miserable death, and that in presence of such a disease, having such grave symptoms, I shall no longer hesitate to advise a surgical operation, the results of which have been shown to be favourable in eighty per cent. of the cases in which it has been performed."

# DISEASES OF THE LUNGS AND ORGANS OF RESPIRATION.

BY E. MARKHAM SKERRITT, B.A., M.D. LOND., F.R.C.P.,

*Professor of Medicine in University College, Bristol, and Senior Physician to the  
Bristol General Hospital.*

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THE following order will be observed in the consideration of the various modes of treatment of the diseases of the lungs and organs of respiration to which prominence has been given during the past year :—

I.—Asthma and bronchitis.

II.—Pneumonia.

III.—Pulmonary tuberculosis.

1. Hygienic and constitutional treatment.

2. Treatment by special remedies.

3. Treatment of special symptoms.

IV.—Diseases of the Pleura.

## I.—ASTHMA and BRONCHITIS.

A good account of the characters and the therapeutic uses of pyridine is given by **Blanc** (*Amer. Journ. of the Med. Sci.*, 1894, i. 313). A colourless fluid, with an excessively penetrating odour, it is freely soluble in water and in alcohol. If inhaled in small doses it produces slight somnolence and headache, with congestion of the face and sometimes a little vertigo. The inspiration acquires a remarkable amplitude, the blood-pressure diminishes, and there is a general vaso-dilatation. The excitability of the medulla and spinal cord is lessened. The bronchial secretion is somewhat increased. Absorption of the drug by the air-passages is rapid, and its elimination by the urine almost equally so ; for it is complete within 15 minutes ; it is also eliminated by the lungs and the digestive tract, increasing the gastric secretion and thus exciting appetite and favouring digestion. This speedy elimination permits the use of enormous doses with perfect safety. Pyridine has also antiseptic properties. Its most



important use, however, is in the treatment of asthma and emphysema, especially the former. Under the influence of this drug, the respiration becomes free, and the expectoration is more fluid and loses its purulence and foulness. Auscultation shows that the sibilant are replaced by mucous *râles*. It is best used by inhalation for 20 minutes from a cloth upon which several drops are poured; but it can be administered by the mouth in capsules.—**R. W. Wilcox** (*ibid.*) has used pyridine with brilliant success in several cases in which the paroxysm of asthma demanded immediate relief; but he has never been able to induce a patient to inhale it a second time, because of its abominable, penetrating, and lasting odour.

**E. B. Sangree** (*Amer. Journ. of the Med. Sci.*, 1894, i. 314) recommends "freezing the vagi" for the relief of asthma. Having made a patient comfortable by the use of nitroglycerine, he found that when the remedy was exhausted the attack immediately regained its former severity; and if the drug was continued, the patient could not lie down or sleep. Small pieces of ice wrapped in a towel and applied over the course of the pneumogastric in the neck relieved the spasm within five minutes.

**C. A. Morton** (*Lancet*, 1894, ii. 78) relates a case bearing upon S. Coupland's observations on the difficulty of determining by physical signs the existence of a cavity in the lung with a view to incision and drainage ("Year-Book of Treatment," 1894, p. 35). Coupland says:—"It is an instructive fact that physical signs of such intensity should have been yielded by a congeries of dilated saccules of irregular shape, the largest of which did not exceed a bean in size." The instance recorded is very similar. The lung was riddled with bronchiectatic cavities, and the main bronchus was greatly dilated from the lodgment of a foreign body. The physical signs were those of a large cavity. An attempt was made to drain this supposed abscess cavity, and the patient died under chloroform. The physical signs in question—dulness, with intense cavernous breathing, and marked pectoriloquy—were found to have been most pronounced over the dilated bronchial tubes entering the lung, whence they were apparently conducted through the enlarged bronchial glands and the solidified lung.

**Arnold Chaplin** brought before the Hunterian Society (*Lancet*, 1894, i. 480) the good results obtained from creasote inhalations in a case of bronchiectasis. The patient was a girl aged 16. As a child she had whooping-cough, and ever since had been troubled with a paroxysmal cough, coming on in the morning, and often culminating in vomiting. For the last three years it had been

attended with profuse and very foul expectoration, which came up in gushes, and made her a trouble to herself and to those around her. She had also severe dyspnoea on exertion, and had lost flesh and suffered from night sweats. The site of the disease was the middle and lower part of the right lung. Many remedies were tried without success; and the following method of treatment was then adopted:—A small chamber was made as airtight as possible, and some coal-tar creasote was put into a dish and heated with a spirit-lamp until the fumes were given off in great quantity. The patient was then placed in the chamber, and inhaled the fumes with which it was filled for one hour every day. The inhalation caused violent cough, with much expectoration. After three inhalations, the morning paroxysm of cough was absent, and the expectoration became sweet. When the treatment was discontinued for two days, the old symptoms returned, but were soon removed on its resumption. After 54 such inhalations of an hour each, the sputum was much lessened, and remained free from odour for a month without any creasote. This had not happened during the previous three years. Breathlessness and cough were but trifling, and night sweats had ceased. This method of treatment is worthy of trial in similar cases.

## II.—PNEUMONIA.

J. S. Ely (*Amer. Journ. of the Med. Sci.*, 1894, i. 356) discusses the evidence of the correctness of the antitoxin theory deducible from the treatment of pneumonia. In their first paper, published in 1891 (*"Year-Book of Treatment,"* 1892, p. 39, § 1), the brothers **Klemperer** recount the results of tests of the therapeutic value of the serum of immunised rabbits in six cases of acute lobar pneumonia. In these the temperature fell in from 6 to 12 hours after the injection, and the rapidity of both pulse and respiration decreased. In two of them the temperature remained normal after the initial fall; but in the others it rose again after about six hours. There soon appeared the report of a case similarly treated by **Foà** and **Carbone**; in which the first injection of 5 c.c. of the blood-serum of an immunised rabbit was followed by fall of temperature, pulse and respiration; and a second like injection the following day ushered in the crisis (on the fourth day of the disease), and the patient recovered. Scabia and Foà soon brought forward another series of ten cases of pneumonia, in which the injection of blood-serum from immunised rabbits was followed by apparent benefit. The dose was from 5 to 7 c.c., repeated two or three times. In eight of

the cases the crisis occurred within 24 hours of the first injection ; in the other two, not until the ninth and tenth days of the disease. All the above experiments were made with the blood of rabbits. With a view to test the efficacy of the serum of dogs, the same observers employed in the treatment of two young persons suffering from pneumonia subcutaneous injections of the serum of a dog whose natural immunity had been reinforced by repeated inoculations of virulent pneumococci. In both cases the result was unfortunate, the temperature rising and the general condition of the patient being rather aggravated than improved ; showing that the serum of the dog was unsuitable. This result suggests that possibly there is a difference between a natural and an acquired immunity, and that the natural immunity may not be dependent upon the constant presence of an antitoxin in the blood, as was at first supposed. Another series of ten cases is reported by **Janson**. In these, doses of from 5 to 27 c.c. of the serum of immunised rabbits were injected subcutaneously into the subclavicular region. In five cases injections were followed by fall of temperature, and other critical symptoms ; in three others the temperature fell, but afterwards rose again ; in one patient, moribund at the time, there was temporary amelioration of all the symptoms ; and in one there was no evident result. The fall of temperature took place in from two to four hours after the injection. The crisis occurred in one on the fourth day of the disease, in two on the fifth, and in two on the sixth. A further interesting series of experiments is reported by **Neisser**. Having demonstrated the protective and curative power, as regards the pneumo-septicæmia of rabbits, of patients convalescent from pneumonia, and having satisfied himself of the correctness of Klemperer's view regarding the identity of the two diseases, in conjunction with **Lichtheim** he tested the curative power of the serum of convalescents in other cases of pneumonia. A young man, in the third day of a typical lobar pneumonia, in whose sputum the presence of virulent diplococci was proved, received in the arm an injection of 130 c.c. of serum obtained by venesection from a convalescent two days after the crisis. The temperature soon sank, and in the evening became subnormal ( $97.7^{\circ}$ ), the pulse and respiration slowed, and convalescence continued uninterrupted. A second patient received on the fourth day of the disease an injection of 70 c.c. of serum obtained from the last patient on the second day of convalescence. The temperature fell to normal the same day, and remained normal till the sixth day after, when a serous effusion formed with moderate fever, but did not return after thoracocentesis. The curative power of



the serous fluid from this patient having been shown in the case of rabbits suffering from pneumo-septicæmia, the fluid was used in a third case of pneumonia, in which the *diplococcus pneumoniae* was demonstrated. On the fourth day of the disease 50 c.c. of the pleuritic fluid were injected into a vein of the arm. The temperature fell nearly to normal, but rose again with the appearance of a small amount of pleuritic effusion; to fall to normal, however, two days later. In all his cases Neisser noticed free sweating and slowing of the pulse and respiration as constant accompaniments of the fall in temperature. There are thus records of 30 cases of pneumonia in which decided benefit seemed to follow the injection of the serum of immune animals or of convalescents from pneumonia. If Klemperer's experiments which resulted in the discovery of "anti-pneumotoxin" are correct, the benefit observed may fairly be attributed to the presence of this substance in the fluid injected. But it may be said that the evidence of benefit is equivocal, since in many untreated cases of pneumonia defervescence occurs early—on the fourth, fifth or sixth day of the disease—and that little more than this was accomplished in the test cases. The regularity with which the critical symptoms followed upon the injections after an almost uniform interval of time, however, forcibly suggests a causal relationship between the treatment and the amelioration of symptoms. And it must be remembered that such early crisis in untreated cases of pneumonia is exceptional. As at all events the harmlessness of the treatment has been proved, it is to be hoped that its value will soon be determined.

A further important series of observations on the treatment of pneumonia by the injection of serum from convalescents is recorded by **W. E. Hughes** and **W. S. Carter** (*Therap. Gaz.*, 1894, i. 365). The fourteen cases were selected carefully, as being typical, and taken at a time when there would be little danger of confounding the result obtained from the injection with the natural crisis. In all serum was used, which was generally obtained by venesection, sometimes by blistering. The serum was injected subcutaneously, this having been found to be as efficacious as the intravenous method, and less dangerous and troublesome.

*Case 1.*—Negro, aged 26; pneumonia involving whole of right lung; severe general symptoms; temperature about 103° F.; diplococci in sputum. On the fourth day of the disease, at 2 a.m., 7 c.c. of serum were injected, and at 9 p.m. 25 c.c. No change in temperature followed the first injection. Twelve hours after the second it fell to 101° F., but rose again immediately, though less high. The crisis occurred on the eighth day, followed

by a secondary rise ending on the tenth. Beyond the trifling lowering of temperature after the second injection, there was no effect on the general symptoms. Resolution of the lung was slow rather than otherwise.

*Case 2.*—Man, aged 50; alcoholic pneumonia of moderate severity; consolidation of part of left lower lobe; temperature between 101 and 102° F.; diplococci. On the fourth day 25 c.c. of serum were injected; this was followed in 12 hours by a fall of temperature to normal, and entire relief of general symptoms; convalescence from the pneumonia was complete, but the man died a week later of uræmia, probably from old Bright's disease.

*Case 3.*—Man, aged 67; both lungs irregularly involved; very severe general symptoms, with typhoid state; marked heart-weakness; temperature quite irregular, ranging between 100° and 104° F.; diplococci abundant. On the ninth day at 4 p.m., 25 c.c. of serum injected; and next day, at 1.30 p.m., 15 c.c. Absolutely no effect was produced, and the man died six hours after the second injection.

*Case 4.*—Man, aged 40; right apical pneumonia; symptoms moderately severe; temperature about 102° F.; diplococci. On the fourth day, at 4 p.m., 9 c.c. of serum injected: at 8 p.m. the temperature began to fall, and four hours later it reached 95.4° F. Convalescence was rather protracted.

*Case 5.*—Girl, aged 8; pneumonia of right lower lobe; symptoms moderate; temperature 102.5° to 103.5°. On the third day 2 c.c. of serum injected. The temperature was unaltered for 24 hours, when it began to fall, and in 12 hours was normal. A trifling pleural effusion followed, without fever; it was quickly absorbed.

*Case 6.*—Man, aged 24; pneumonia of right upper lobe; general symptoms severe, verging on the typhoid; temperature 103° to 105°. On the fifth day, at 8.30 a.m., 25 c.c. of serum injected. By midnight the temperature had fallen to 100°, and the general state was vastly improved. Then the temperature slowly rose to between 101° and 103°, but never as high as before; and other bad symptoms returned in a measure. On the eighth day 5 c.c. were injected. The temperature promptly fell to 97° F. Convalescence was very rapid.

*Case 7.*—Boy, aged 11; case moderately severe; temperature 102° to 104°. On the fourth day, at 2.30 p.m., 11 c.c. of serum injected; by 2 a.m. next day the temperature had fallen to 96.8°. Convalescence was rapid.

*Case 8.*—Man, aged 28; pneumonia of left lower lobe;

moderate symptoms ; temperature about  $103^{\circ}$  ; diplococci. On the 5th day 25 c.c. of serum injected. Twelve hours afterwards, the temperature was normal.

*Case 9.*—Man, aged 21 ; pneumonia of right lower lobe ; temperature  $104.4^{\circ}$  ; promised at outset to be only moderately severe. On the 2nd day at 9 p.m. (46 hours after the initial rigor) 25 c.c. of serum were injected. At 9 a.m. next day the temperature was  $103.4^{\circ}$ , where it remained through the day, with no change in the symptoms. At 9 p.m. 40 c.c. more were injected. Twelve hours later the temperature had returned to  $104.4^{\circ}$ . At nine p.m. next (the 4th) day, 45 c.c. were injected. Five hours afterwards the temperature had fallen to  $101^{\circ}$  F., but this was only temporary, and unattended by improvement in general symptoms. Two days later evidence of meningeal inflammation appeared, and next day the patient died, with a temperature of  $108^{\circ}$  F.

*Case 10.*—Man, aged 25 ; consolidation of upper lobe of right lung ; all symptoms severe ; diplococci ; temperature  $102^{\circ}$  to  $104^{\circ}$ . On the 5th day 50 c.c. of serum injected. No effect was produced, and the man died 24 hours later with a temperature of  $104^{\circ}$ .

*Case 11.*—Woman, aged 45 ; whole right lung consolidated ; symptoms most grave ; temperature  $102.8^{\circ}$  to  $103.6^{\circ}$  ; diplococci. On the 6th day, 30 c.c. of serum injected. The temperature promptly rose to  $104^{\circ}$ , and then fell, reaching  $101^{\circ}$  in 15 hours, with a most gratifying change in the general condition. After this the temperature ranged between  $101^{\circ}$  and  $104^{\circ}$ , but the symptoms were less grave than before the injection. Convalescence, afterwards moderately rapid, did not set in till the 11th day.

*Case 12.*—Woman, aged 48 ; pneumonia of left lower lobe ; symptoms rather severe, temperature  $102^{\circ}$  to  $104^{\circ}$ . On the 6th and 7th days 25 c.c. of serum injected. There was absolutely no effect. The crisis occurred on the 10th day, and convalescence was rather rapid.

*Case 13.*—Man, aged 50 ; pneumonia of right lower lobe ; condition bad ; diplococci. On the 5th day 15 c.c. of serum injected, and on the 6th 25 c.c. No result. Crisis occurred on the 9th day. Abscess formed at the seat of the second injection.

*Case 14.*—Man, aged 30 ; alcoholic pneumonia ; symptoms extremely grave ; temperature  $101^{\circ}$  to  $102^{\circ}$  ; diplococci. On the 4th day at 4 p.m. 25 c.c. of serum injected. Twelve hours later the temperature had dropped to  $100^{\circ}$ , where it remained till 8 p.m. (the 5th day), when 17 c.c. were injected. Six hours later the temperature had fallen to  $99.4^{\circ}$ . For the next two days it ranged between  $99^{\circ}$  and  $100^{\circ}$  ; then it rose rapidly, and the man



died at  $108.2^{\circ}$ . No effect whatever upon the general condition had accompanied the lowering of the temperature after the injection.

This series of cases is undoubtedly disappointing. In cases 1 to 10 the serum used was apparently as perfect as possible; obtained from typical instances of pneumonia, in each of which virulent diplococci were present; and in none was the interval between the crisis and the taking of the serum more than two weeks, while in many it was less. It was to be expected that regular and definite results would follow the use of the serum; but while some of the cases were marked successes, others were just as marked failures. Of the ten cases, only five can be claimed as distinctly showing any effect due to immune serum. In Case 5, while a crisis did follow the injection, yet the time that elapsed before its completion (thirty-six hours) renders it doubtful whether it was due to the serum, as an early crisis is not uncommon in children. Of the three cases where no result was shown, Case 1 was in a negro. As diplococci in a negro's sputum seem more virulent than in a white man's, it may be imagined that the same holds good in the lungs, and that a larger dose of antidote would be required. But if failure were due to the large amount of toxin present, an exceptionally pronounced immunity would be expected (granting that toxins have anything to do with immunity); and yet the serum in this case rapidly lost its antitoxic power. Cases 3 and 9 were unquestioned failures. In the latter, the man came under observation immediately after the initial chill, the general treatment was carried out in the most favourable circumstances, and the quantity of serum was large, and yet blank failure resulted. These discrepancies cannot be reconciled. That they were due to causes inherent in the persons of those injected, essential variations in diseased processes, or subtle radical differences in constitution, and not to faulty conditions of the serum, is proved by the fact that different results followed the use of the same serum. Thus Cases 2 and 3 had the same serum; 2 was a success, 3 a failure; and again, Case 4 was a pronounced success, 5 a doubtful result. On the antitoxic theory, granting that there is a single specific cause for pneumonia, and that the toxins produced are always the same, if there be a definite antitoxin, its action should be the same in all cases. The probable difference between cure and immunity must be borne in mind; cure means the destruction of germ-producing toxins; immunity, the impossibility of bacterial growth or failure of secreted toxins to produce harmful effects. The two things are not necessarily identical. It is at present

impossible to say what factors other than the anti-pneumonia toxin may be concerned in the production of the crisis and the subsequent immunity.

From a therapeutic standpoint the results of the injections are disappointing. In the ten cases where perfect serum was used, there were three deaths, giving about the ordinary death-rate of pneumonia. With the imperfect serum, the mortality was about the same—one in four. The method, however, is perfectly harmless; in two cases where local inflammation followed, there was probably some defect in the process. One word of caution is needed as to the source of the serum; it must not be obtained from a case where there is suspicion of kidney disease, as the authors have found that serum drawn from patients suffering from Bright's disease is capable of producing nephritis when introduced into the veins of dogs. (See also "Year-Book of Treatment" for 1894, p. 41.)

In discussing the treatment of pneumonia, **Shattuck** (*Therap. Gaz.*, Jan. 15, 1894) points out that no mode of aborting the disease which has yet been proposed has made good its claims. Still, it seems that Petresco's method is worthy of trial; since 1883 he has treated 755 cases of pneumonia with very large doses of digitalis from the first, and claims to have had a mortality of only 1.22 per cent. He gives from 1 to 2 drachms of the leaves daily. At present, however, our efforts are confined to promoting the comfort of the patient and conserving his forces in every way to enable him to outlive the disease. Patients very rarely succumb to the stage of invasion or preliminary congestion of lung with implication of pleura. The danger is rather of loss of strength which may be wanted later. Therefore the indication is to put the patient to bed and freely open the bowels, and relieve the pain by hypodermic injections of morphia. Restlessness and an excited nervous system call for morphia nearly as loudly as does pain. Now and then the lung tissue is invaded so rapidly that the heart is embarrassed, and the breathing consequently greatly oppressed. In such a case nothing gives such prompt relief as venesection. If internal antipyretics are to be used at all in pneumonia, it is only during the first stage that they are admissible. Even the best of them are somewhat depressing to the heart. In the second stage, the cause of death is rarely asphyxia from the amount of lung involved. This is usually quite subordinate to cardiac exhaustion, due probably to the influence of toxins on the innervation of the organ rather than to changes in its muscles. This seems to be proved by the great fall in the pulse as well as in the breathing which occurs at the crisis

although the physical signs may show no change. It is, therefore, the maintenance of nerve-force which must be aimed at. This means the avoidance of all unnecessary fatigue, and the administration of the largest amount of the most nutritious liquid food which can be digested, with free ventilation of the room. The poultice and cotton-wool to the chest are relics of the old pathology; and the poultice is the worse, as its frequent change involves notable fatigue, and its weight is not insignificant. Plenty of fresh air and sunshine are strongly to be recommended. Morphia should be used more freely in this stage than is usual—not so much for pain, as for restlessness, cough, and sleeplessness. The degree of danger from respiratory failure must be estimated; the smaller this, the more freely can morphia be used, which will do more good in resting the nervous system than harm in other ways; and even where the danger of respiratory failure exists, the inhalation of oxygen enables the drug to be administered when otherwise this might not be justifiable. Oxygen may be useful when sufficient air to arterialise the blood is prevented from reaching the alveoli by excessive secretion in the tubes combined with consolidation of the lung. Cyanosis is, therefore, the best single indication for its use, which should be early and free. Even where cyanosis is little marked, refreshment, quieter respiration, a fuller pulse, and diminished restlessness, perhaps sleep, may follow its administration. The gas may aid in the combustion of toxins. The other chief means of stimulating the flagging heart are alcohol, strychnine, cocaine, and digitalis or other heart-tonics. Strychnine has justly grown in favour of late; it is best given hypodermically, and in severe cases to the limit of toleration,  $\frac{1}{40}$  to  $\frac{1}{20}$  grain every three or four hours. H. C. Wood speaks highly of cocaine as an adjuvant to strychnine. All writers advise digitalis or one of its congeners if the heart shows signs of failing. Perhaps it is not given in large enough doses; and it should probably be more often used hypodermically. The author has seen prompt and distinct effect in several cases follow hypodermic injections of 30 minims of the tincture. He has no experience of the cold bath and wet pack as remedies against fever, delirium, and other nervous symptoms. Exhaustion or collapse at the occurrence of the crisis calls for free stimulation, both internally and to the surface.

One method of curative treatment yet remains to be proved—the injection of blood-serum from a patient who has recently passed the crisis of pneumonia, or blood-serum or fluid derived from animals rendered immune to experimental pneumonia by the injection of pneumococcus cultures, with the object of inducing



the crisis by artificial means. In one case thus treated in America, defibrinated blood was used; but the result was by no means encouraging.

**Cunningham** contributes a paper (*Therap. Gaz.*, 1894, i., p. 176) on the results of the treatment of ninety-three cases of pneumonia. Strychnine was given extensively, in some cases in doses of  $\frac{1}{50}$  grain regularly every three hours; always hypodermically; and the effect it produced was remarkable. Digitalis and carbonate of ammonia were abandoned as useless. The anti-pyretics adopted were baths, quinine, phenacetin, and acetanilide; and the conclusion drawn from a careful analysis is that the mortality of the bath cases was 1 to 2.25 with the other anti-pyretics. He discusses the employment of "hypodermoclysis," or the subcutaneous injection of a saline solution, consisting of 1 drachm of chloride of sodium to the pint of water—a method which he believes to be entirely new in the treatment of croupous pneumonia. He employs it with the object of producing reaction from the prostration and marked debility which are often present, and believes that it is followed by good results; particularly in cases suffering from cardiac failure, which he thinks may be due to *ante-mortem* clotting in the heart. He believes that the addition to the blood of chlorides, which in pneumonia are passed out of the body too freely, does much to prevent such clotting; and he employs daily from 4 to 12 ounces in this way. He sums up the main principles of treatment as follows:—(1) To combat the shock of the germ invasion, best done by opium, stimulants, and hypodermoclysis; (2) to stimulate freely, the best stimulants being whisky and strychnine, supplemented in extreme cases by tincture of strophanthus; (3) to control temperature, the best agent being the bath; (4) to prevent if possible the formation of heart-clots, for which purpose he considers hypodermoclysis the most useful; and (5) to meet indications as they arise.

**Le Gendre** (*Union Méd.*, March 20, 1894) speaks highly of the application of moisture to the thorax in all acute diseases of the respiratory tract, and in certain phases of chronic disease attended with hyperæmia. The thorax is enveloped in a cold water compress which is changed every quarter of an hour, every half hour, or every hour, according to the effect produced. This method of treatment is especially useful in children, even if very young, and relieves the dyspnoea more rapidly than any other procedure, by making the respiratory movements fewer and deeper, and soothing the nervous system. He had kept children for as long as eight days with the chest enveloped in compresses.

In the discussion which followed, Rendu stated that he had obtained excellent results during the last ten years by wrapping the whole body in a moist cloth, and leaving the patient in it for two or three hours. The surface temperature is first raised, and then copious sweating and diuresis follow, with a fall of temperature, and the patient is much relieved. The application is not made more than once a day.

The treatment of fibroid lung disease was discussed by the late Sir Andrew Clark with characteristic ability in a lecture delivered at the London Hospital (*Lancet*, 1894, i. 1). He sums up a number of cases brought forward in the following general terms: some of them are pure fibroid; some fibroid with dilatation of the tubes; and some with cavities, falling under the name of "fibroid phthisis." All the cases were chronic, all non-febrile; in all there was little or no constitutional disturbance, and, with one exception, in all the sputum was free from bacilli.

In considering the management of these cases, it must first be remembered that "the laws of health are not to be suspended because a person is sick"; and this has special reference to the digestion, and the pernicious habit of over-feeding and over-stimulating the patient. Next, it has to be recognised that there are no fixed principles for the management of the disease, but each case must be treated upon its own merits. Certain general principles may, however, be applied with safety. First, there is the food. The great difficulty is to avoid giving as much food as the patient's friends wish. Four meals a day should be given: breakfast, 8 to 9 A.M., bread-and-butter, with eggs or fish, or fat bacon, with half a pint of tea made with milk: the milk suits almost all these fibroid cases. From 1 to 1.30 P.M. should be the dinner-hour; the meal should consist of meat, bread, potatoes, other vegetables, and either milk pudding or cooked fruit. At 4 or 5 P.M., bread-and-butter, and tea or coffee made with milk. At 7.30 to 8 P.M., supper, a light meal of the same kind as the dinner. And nothing more; there must be no "betweens." Next in importance comes the question of alcohol. Some patients with fibroid phthisis—by no means all—are much benefited by a little alcohol. This should be given at dinner and at supper, and at no other time, and in such strictly moderate amount as to produce no discomfort. Clothing should be warm, and frequently changed. Exercise should be general, "which enables the body to get rid of its dust and ashes," half an hour's walk twice a day being sufficient; and it should also be special—adapted to counteract the tendency of the fibroid tissue in the lung to progressive contraction. The kind of exercise which goes far to

prevent this contraction of lung is that which more or less continuously expands the chest. The method used was that formerly known in the hospital as the "stair cure." Patients with an old pleurisy or a fibroid lung were required to go upstairs once, or twice, or many times, according to their condition. The chest has thus been enlarged as much as an inch within a month. But care is required; if these cases are pushed too hard, hæmoptysis may be caused. A certain amount of occupation is also desirable, with absence of worry and anxiety. Early hours are important, both in the morning and at night. Constipation is to be avoided, and purgation equally so. A glycerine suppository is often all that is needed; and if the digestion gets out of order, a grain or two of calomel at night, and a little sulphate of soda in the morning, will usually set matters right. Then there is the question of "change." In fibroid phthisis the effect of high altitude is very uncertain, and often disastrous; and the latter is especially the case if albumen is present in the urine. A bracing sea-side place almost invariably suits the cases under consideration; and the best advice to them is usually either to go to such a locality, or to stay at home. If nutritive debility exists, there are two remedies which sometimes succeed in nourishing the patient when the ordinary diet fails. These are cod-liver oil and malt, given with food, and "bynol," consisting of hypophosphites, oil, and malt. If hæmoptysis or hæmatemesis occurs, it is not only useless, but harmful, to give astringents, such as gallic acid, in large doses. All that is necessary is to keep the patient in bed, with a dry diet, and to get the bowels to act once or twice a day, say with Epsom salts. The best remedy for diarrhœa is a small dose of calomel at night, and a small dose of castor oil in the morning. "Colds" are most perilous things for these patients, as they are liable to get down into the bronchial tubes. The patient should be put to bed at once, and placed on a slop diet, and should take a teaspoonful of solution of citrate of ammonia every two hours. When the fever runs high, and the cough is tight, five drops of ipecacuanha wine and twenty of sweet spirit of nitre should be added; this is the most efficient, easy, and successful treatment of these intercurrent colds.

### III.—PULMONARY TUBERCULOSIS.

#### 1. Hygienic and Constitutional Treatment.

S. Delépine and A. Ransome communicate to the Scientific Grants Committee of the British Medical Association (*Brit. Med. Journ.*,



1893, ii. 990) a preliminary report on the disinfection of tuberculously-infected houses. In the first instance, the object of the investigation was to test the value of the method used by the municipality of Manchester for disinfecting rooms in which tuberculous patients had lived. The only means so far reported upon is that of disinfection by chlorine, or, more correctly, euchlorine, which was carried out in the usual way by the sanitary authority. In conducting the experiments, pieces of paper were carefully sterilised in glass capsules. They were then infected with tuberculous material, either sputum or pure cultivations of the bacillus (human in most cases, avian in a few), and the capsules were sealed, the sputum or cultivation being allowed to dry on the paper. They were then sent to the officer who had to disinfect certain rooms. The capsules were opened just before the acid was poured upon the chlorate of potash, and sealed again when the room was reopened. Rabbits and guinea-pigs were then inoculated with small pieces of infected paper or superficial scrapings, mixed with sterilised bouillon. In all cases control experiments were made with pieces of paper treated in exactly the same way, but kept in the laboratory till the capsules which had been sent out were returned. The following conclusions are based upon thirty-four experiments:—

1. Intraperitoneal injection of scrapings of wall paper sterilised by heat: negative results.

2. Intraperitoneal injection (rabbits) and subcutaneous inoculation (guinea-pigs) with scrapings or bits of paper infected with tuberculous sputum, and exposed to the action of euchlorine in rooms that were being disinfected. Nine experiments made with three different specimens of sputa: the results showed that the effects of the disinfecting process were uncertain. In some complete disinfection seemed to have been obtained, but the control experiments (3) showed that some sputa were not so virulent as others.

3. Intraperitoneal injection (rabbits) or subcutaneous inoculation (guinea-pigs) with paper infected with tuberculous sputa, the paper not being exposed to the action of euchlorine. Eight experiments, in four of which the evidence of the induction of tuberculosis was marked; in the others it was less distinct; and one sputum acted very slowly, this possibly accounting for the apparently complete disinfection of papers infected with it.

4. Inoculations with papers infected with tuberculous sputum, and allowed to dry in the dark for forty-five days. Two experiments: doubtful result in a rabbit, typical tuberculosis produced in a guinea-pig.

5. Inoculations with papers infected with tuberculous sputum and allowed to dry in the air for 45 days, being at the same time exposed to daylight. Two experiments. No certain evidence of tuberculisation could be found 80 days after inoculation.

6. Inoculations with papers infected with pure cultivations of bacilli from a case of human tuberculosis, and not disinfected. Four experiments: in all cases, marked evidence of tuberculosis was found within three weeks from the date of inoculation.

7. Inoculations with papers infected with pure cultivations of avian tuberculosis, not disinfected. Three experiments. Distinct signs of infection were obtained within three weeks from the date of inoculation; but two of the animals being allowed to live, one recovered, and only slight traces of tuberculosis were found in the other 35 days after inoculation.

8. Inoculations with papers infected with pure cultivations of bacilli from human tuberculosis, and afterwards exposed to the action of euehlorine in rooms that were being disinfected. Six experiments. In all cases distinct evidence of tuberculosis was observed within three or four weeks from the date of inoculation.

It was therefore shown that the method of disinfection adopted was not effectual.

The relation of dust in hospitals to tuberculous infection is the subject of some interesting experiments recorded by **G. A. Heron** and **T. H. A. Chaplin** (*Lancet*, 1894, i. 14). These observers undertook the investigation, first, because recent work tends to show that substances (and more particularly dust) which have been in more or less direct contact with tuberculous persons are in no slight degree factors in the causation and spread of tuberculosis; and secondly, because this being so, it is important to ascertain whether or not the placing of tuberculous individuals under anti-septic rules as to the disposal of their sputum and other tuberculous discharges minimises the chance of infection from dust and other material which has been in contact with such persons. The substances used were, with one exception, taken from the City of London Hospital for Diseases of the Chest. They were as follows:—(1) Dust from the main outcast shaft of the hospital, which has never been swept; the dust has therefore accumulated for upwards of 40 years, during which period over 20,000 patients have been admitted to the hospital. The up-cast flues of the wards open into this shaft. For the last five years great care has been taken to prevent the air of the wards from becoming contaminated with bacilli. (2) Dust from the out-patient waiting-rooms; where such precautions as are possible

are enforced, but necessarily less completely than in the wards. (3) Dust from beneath a large fixed table in one of the wards, which was not unlikely to contain bacilli. (4) Dust from the pathological workroom, some of the cupboards in which had certainly not been dusted for three years ; here the air was constantly in contact with drying sputum, and it was highly probable that bacilli would be present in the dust. (5) Sputum loaded with bacilli, to which free access of air was permitted for eight months. (6) Dust from a house in which no tuberculous patient had lived for 40 years. In all, 100 guinea-pigs were inoculated and examined ; of these, 31 were kept for three months and 42 for two months before being killed. Twenty-seven died of either intense inflammation or septicæmia. In the whole series of experiments evidence of tubercle was met with in only two instances, both of which had been inoculated with dust No. 1, from the main air-shaft.

Little as yet has been done outside Koch's discovery of the pathology of tuberculosis some 11 years ago, to show how the disease is conveyed from tuberculous to healthy persons. It is worthy of remark that only two out of the 100 guinea-pigs inoculated were infected with tuberculosis. In the wards and out-patient rooms of such a hospital as the one in question, the dried sputum is the source of danger. In the former this is now to a great extent kept under control ; and the same applies to the out-patient department, though less absolutely. It would not, however, be surprising to find evidence of tuberculous infection in the dust of these rooms. In the dust from under the table in the ward, which was very difficult to clean thoroughly, such evidence was indeed expected ; yet it was not found ; and this may perhaps be accounted for by the care taken to keep the spittoons regularly emptied and cleaned. No explanation can be offered of the absence of evidence of tuberculous infection in the case of the dust from the pathological workroom. Septicæmia killed most of the guinea-pigs inoculated with stale sputum, before tuberculosis had time to declare itself plainly. Five animals that survived were afterwards killed and examined, and not one had developed tuberculosis. This is worthy of note, as the sputum was teeming with bacilli. The dust from the main shaft, which alone gave positive results, had been submitted to two influences which might have favoured bacterial survival and growth : first, the warmth of the constantly-changing air ; and secondly, the protection from bright sunlight, and indeed almost from light altogether.

The outcome of these observations is to show that in a hospital



where a very moderate amount of care is taken to prevent the spread of tuberculous infection, there is surprisingly little evidence of the escape of bacilli to become a source of danger. The gauging of the real value of such observations is complicated by the doubt which exists on several important points. For instance, when pathogenic bacteria are cast out of the body of their victim, and are thus obliged to submit for a time to a non-parasitic existence, their killing-power becomes a very uncertain quantity. The uncertainty lies in the direction of loss of virulence—as, for instance, when the anthrax bacillus is removed from the body and cultivated in gelatine. And although the bacillus of tubercle probably retains its virulence at least as well as any other organism under the conditions of non-parasitic life, it must be remembered that there exists no experimental proof to guide us where human beings are concerned, and that it is not known to follow that because tuberculous bacilli, after drying on a floor for six weeks, will kill a guinea-pig or a rabbit, they can therefore infect a man in like circumstances. It is known that the anthrax poison, which will surely kill a guinea-pig, is by no means certain to kill an ox. Exact observations, grounded on experiments properly conducted, will decide the real value of the precautions now taken in hospital and in the sick-room and in the general management of the tuberculous patient.

A long and interesting debate on the question of the compulsory notification of tuberculosis took place at the College of Physicians of Philadelphia on January 12, 1894 (*Brit. Med. Journal*, 1894, i. 269). Some months ago the Philadelphia County Medical Society petitioned the Board of Health of the city of Philadelphia to include tuberculosis amongst the diseases officially declared contagious. The meeting of the College was summoned to consider a resolution proposed by the Council opposing the action of the County Medical Society.

**L. Flick** spoke strongly in favour of an amendment asking for the registration of the houses in which cases of tuberculosis occurred. He also proposed the establishment of a municipal hospital exclusively for tuberculosis, and the prohibition of the admission of tuberculous patients into general hospitals. In support of these propositions, he cited especially his investigations into the distribution of what he termed “infected houses” in the 5th ward of Philadelphia, and similar studies made by **Forrest** in Newhaven. He contended that these observations showed that tuberculosis was transmitted from family to family through successive occupancy of houses which had become infected, and that therefore registration and official disinfection of such houses

would go far to prevent the disease. The principal speaker on the other side was **Professor da Costa**, the president of the College. He argued that the conclusions drawn from Flick's maps were open to fallacy, especially from the fact that the antecedents of the persons successively dying from tuberculosis in the same houses had not been traced. It would be necessary to show that they had not inherited the disease, or acquired it before occupying the houses in question. Proof was required that the bacillus remained potentially pathogenic in a certain room for the length of time—in some instances 10 years—intervening between case and case in some of the so-called "infected houses." The close proximity of the houses suggested the action of some general cause due to locality—perhaps subsoil water—as shown by **Bowditch** and **Buchanan**. Tuberculosis was so feebly contagious that to rank it in the same category with diphtheria or small-pox would be to excite unnecessary alarm in the community, and to render the sufferers from the disease objects of aversion and suspicion. In addition, the wide distribution of the bacillus rendered it impossible to take practical measures against it, unless all tuberculous persons were forcibly segregated. He had made careful studies of his own records in cases in which he had been able to keep families and houses under observation for long periods—for 25 years in some cases—and no instance to support Flick's contention had come under his notice, while he cited many to the contrary. He likewise found strong support for his own view in the life-histories of the resident physicians and nurses at the Pennsylvania Hospital, which he had been able to trace partly from records and partly from personal knowledge for a period of nearly 70 years. The precautions against infection, proper and possible to be taken, were so simple that each physician could and should constitute himself the most efficient health-officer in the case of his own patients. The one measure calculated most of all to stamp out tuberculosis was to prevent the marriage of tuberculous persons; but he feared that was as yet impracticable. **Professor Osler** expressed himself almost as strongly as Professor da Costa in favour of the view of the heredity of tuberculosis. He believed that often the disease remained latent for long periods, to break forth suddenly. On the other hand, the facts proving infection from case to case, and the duration of infection in houses, seemed to him to warrant the opinion that registration combined with efficient disinfection would tend to diminish the spread of the disease. **Abbot**, of the Laboratory of Hygiene of the University of Pennsylvania, thought that the ubiquity of the bacillus was much

over-estimated, and that measures of disinfection might be made efficacious.

Professor Tyson thought that the long duration of cases and the impossibility of following patients continuously would render nugatory any attempt to limit the spread of tuberculosis by police measures. With other speakers he would rather emphasise the necessity for the physician in attendance to teach his patients how to carry out proper prophylactic measures. Other speakers called attention to the generally bad condition, from a sanitary standpoint, of the district and of the people concerned in Flick's studies. Overcrowding, bad drainage, poverty, personal filthiness, and vice were potent causes of that liability to infection without which the bacillus of tubercle might be comparatively harmless. The College, by a large majority, adopted the resolutions reported by the Council, which declared against registration, and petitioned the Board of Health "to take no action except insisting upon the proper disinfection of the rooms in which consumptives have lived and died when it appears that such disinfection would not be otherwise carried out."

P. C. De Wit writes from Cradock, on the Karroo district of South Africa as a health-resort (*Brit. Med. Journal*, 1894, i. 1258). The town of Cradock itself is most beneficial in its climatic influence. It is 2,850 feet above sea-level, but many portions of the district rise 1,500 feet higher. It is one of the most easily accessible towns in the colony. An objection to it from the point of view of the invalid is that as yet there is a difficulty in obtaining the needed comforts. It is important to remember that its climate is only beneficial in certain chest cases, badly-selected patients returning in a worse condition than when they left home. Instances are quoted to illustrate the class of case for which the climate is suitable, as well as the reverse. Patients with consolidation, unilateral pneumonia, phthisis, and hæmorrhage without extensive disease, commonly do well; but it is most important to remember that there must be no evening fever. The climate is contra-indicated in cases with pyrexia, night sweats, laryngeal affection, and bilateral disease.

In an article on "the expatriation of consumptives," the *Brit. Med. Journal* (1894, ii. 665) calls attention to a warning addressed to the *Scotsman* by a correspondent at Bloemfontein. The letter says:—"No man should come out here for the sake of his health unless he can live at his ease. Our climate, although exceptionally good for persons with delicate chests when they can live quietly at their ease, is nevertheless very trying for those who have to work hard for their living. In fact, they had much



better stop at home. It is really becoming a very painful sight to see the number of young men who are sent out by their doctors who know absolutely nothing of this country and its conditions. These men have to work hard from 6 a.m. to 6 p.m., the usual hours here, and get bowled over in no time. The cheapest board and lodging of the roughest kind for invalids cost £7 ls. per month."

The Journal well points out the duty of medical men to take as wide a view as possible of the question of health-resorts, and, for all except the wealthy, to make it include a careful consideration of the possibility of earning a living.

Speaking of the climate of Aliwal North, on the north-eastern border of Cape Colony, **B. L. Guillemard** (*Brit. Med. Journal*, 1893, ii. 1347) gives a word of warning. No patients in an advanced stage of phthisis should ever be sent to South Africa; it is a cruelty to such persons to advise them to leave comfortable homes in England in the vain hope of a cure. On the other hand, to patients in quite an early stage of tuberculous phthisis without much pyrexia, or in cases of phthisis following pneumonia or pleurisy, where the invalid can take out-door exercise, a residence in one of the South African health-resorts offers a reasonable prospect of cure. But the patient must make up his mind to a stay of years rather than of months. A short visit is of little value, while a residence of some months or years will generally result in prolongation of life and often in cure. There is abundant scope for out-door pursuits, and life can be made enjoyable in the perpetual sunshine.

The Australian correspondent of the *Lancet* writes in the same strain (*Lancet*, 1894, ii. 57). He says that attention has been recently directed to the need of sanatoria in suitable localities in Australia for patients in the early stage of phthisis. One such institution exists at Echuca, on the River Murray, in Victoria; but it contains only fourteen beds, and the number of deaths from phthisis in each of the colonies of Victoria and New South Wales is over 1000 a year. There is also some provision for similar cases at Heidelberg, in Victoria, and at Paramatta and Thirlmere, in New South Wales. It is highly desirable that more care and judgment should be exercised by the profession in Great Britain in advising phthisical patients to go to Australia. Numbers of patients with advanced disease still come out on the vague advice of their medical attendants. They do not know where to go, and generally remain in the seaboard cities, soon spend what little money they have, and drift into the hospitals to die. It must be remembered that it is only in certain inland parts of Australia

that the climate is suitable for tuberculous affections, such as the plains of the Riverina and those to the west of the great dividing range in New South Wales, and the districts of Maranoa, Warrego, Mitchell, and Gregory in Queensland. Out in these places there is not much occupation for those suffering from phthisis, and unless they are well-to-do, or have friends in such districts, it is useless to send them out. Were sanatoria established in suitable localities, and only patients in the early stages of the disease admitted, some good might be done; but even then there is quite sufficient tuberculous disease among the native-born population to keep such institutions well filled.

H. P. Loomis (*New York Med. Record*, March 24, 1894) discusses at length the dietetic treatment of phthisis, which he sums up as follows:—1. Cough mixtures should be avoided if possible. 2. Food should be taken at least six times in the twenty-four hours; light luncheons between the meals and on retiring. 3. The patient should never eat when suffering from bodily or mental fatigue or nervous excitement. 4. He should lie down for twenty minutes before the midday and evening meals. 5. Starch and sugar should be avoided, as also all indigestible articles of food. 6. As far as possible, each meal should consist of articles requiring about the same time to digest. 7. Only as much should be eaten as can be easily and fully digested in the time allowed. 8. As long as possible, systematic exercise should be taken to favour assimilation and excretion; when this is impossible, massage or passive exercise should be used. 9. The food must be nicely prepared and daintily served. The following is given as a specimen diet-sheet for the early stage of phthisis:—On waking, eight ounces of equal parts of hot milk and seltzer water, taken slowly. Breakfast: oatmeal or cracked wheat, with sugar and plenty of cream, “rere” steak or loin chops with fat, soft-boiled or poached egg, cream toast, half a pint of milk, and a small cup of coffee. Lunch, 10 a.m.: small tea-cup of squeezed beef juice with stale bread; 12 noon, rest or sleep. Midday meal, 12.30 p.m.: fish, chicken, scraped meat-ball, stale bread with plenty of butter, baked apples and cream, two glasses of milk. Lunch, 4 p.m.: bottle of koumiss, raw scraped beef sandwich or goblet of milk; 5.30 p.m.: rest or sleep. Dinner, 6 p.m.: substantial meat or fish soup, “rere” roast beef or mutton, game, stale bread, and fresh vegetables in season (sparingly). The invalid who can satisfactorily deal with such a daily programme will have no fault to find with his digestive powers.

## **2. Treatment by special remedies.**

W. Kingston Fyffe (*Lancet*, 1894, ii. 684) gives details of some

interesting experiments on the effect of creasote in modifying the virulence of the tubercle bacillus. The observations were undertaken with the object of showing whether the benefit derived from the use of creasote in phthisis is due to any interference with the virulence of the organism, or simply to the fact that the drug by its antiseptic qualities stops fermentation in the stomach, and consequently improves digestion and aids assimilation. At the Victoria Park Hospital, where the observations were made, creasote is administered in three ways: as an inhalation; by the mouth; and by means of the creasote chamber. The latter is a room eight or nine feet square; the patient, with his eyes protected with glasses and his nostrils plugged, is placed in it, and a few ounces of commercial creasote are heated in an iron dish over a spirit-lamp; the fumes rapidly come off till the room is thick with vapour, which the patient breathes; he is kept in it for an hour. Observations on the bacilli showed that their number bore little or no relation to the condition of the patient's health, and that no distinction could be drawn, either from their number or from their morphology, between the bacilli of those cases treated by creasote and those taking other drugs. The plan adopted was to inject the sputum into the leg of a guinea-pig. If a guinea-pig is thus inoculated with the bacillus, it appears invariably to occur that in a few days the popliteal glands are affected, then the inguinal, and finally the lumbar; after fifteen days the spleen and liver are diseased, and in a month or five weeks the animal dies with implication of lung. It is therefore possible to gauge the virulence of the injection by the extent of the mischief done. Thus, if at the end of fifteen days, when the liver, spleen, and glands should be affected, only the glands are the seat of disease, it is fair to say that the virulence of the sputum is less than normal. The resistance of the guinea-pig may be regarded as a constant quantity.

The first series of observations was made upon patients who were inhaling creasote, and at the same time taking cod-liver oil or hypophosphites. All had definite physical signs, with bacilli in the sputum; they were in an early stage, and showed fairly rapid change. The sputum taken was that coughed up in the early morning. This was injected into guinea-pigs before treatment of any kind was begun. After two months another specimen of sputum was injected, and the results were compared, the animals in each case being kept one month before being killed. Of twelve such cases, the sputum in every case caused tuberculosis of glands, spleen, liver, and lungs. Hence it may be taken that the inhalation of creasote has no effect whatever upon



the virulence of the bacillus. The patient's general health improved greatly; but the physical signs remained unaltered. This improvement is, therefore, evidently due to the increased force of resistance of the patient, and not to lessened virulence of the bacillus.

In the next series the patients took creasote by the mouth, and here the results were distinctly more encouraging. The dose varied from 2 to 12 minims thrice daily. Taking first the patients treated with 2-drop doses, in one case a guinea-pig inoculated before the commencement of the treatment died in eighteen days, whereas, when the patient was taking 2-drop doses of creasote, the guinea-pig inoculated did not die for seven weeks. In another case the animal inoculated with the untreated sputum was killed after fifteen days, and was found to have tubercle in all its organs; while another, inoculated at the end of two months' treatment, and killed also on the fifteenth day, showed tuberculosis of the glands, but no affection of internal organs. With larger doses of creasote the effect was more striking. Thus, inoculation from the untreated patient caused death on the twentieth day, with the usual *post-mortem* appearances. After two months' treatment with 6 minims of creasote three times a day, one guinea-pig inoculated lived for nine weeks, and another was killed on the fifteenth day, with tubercle bacilli in the lumbar glands but not in the viscera; the glands were inflamed, but not caseating; the bacilli were few, small and thin, not congregating into colonies, and an attempt to cultivate them did not succeed. Inoculations were then made from patients taking up to 12 minims thrice daily. The longest time that any guinea-pig lived was three months after inoculation from a case taking 10 minims at a dose; while another, inoculated from a patient on 12 minims, lived a shorter time. If the animal was kept long enough, it always died of tuberculosis. The observations on patients treated by the creasote chamber are incomplete, though it may be noted that the guinea-pigs inoculated lived for thirteen and fourteen weeks respectively. Further experiments also seemed to show that the injection of creasote into the guinea-pig at the same time as, or after, the inoculation with sputum, has a definite restraining effect on the poison of phthisis.

The observations may be summed up as follows: In the first series of cases, those that were taking creasote only as an inhalation in addition to other drugs, no effect on the virulence of the disease was noted. In the second series, where the drug was given by the mouth in doses varying from 2 to 12 minims three times a

day, though when the smaller doses were given the diminution of virulence was slight, yet when the larger amounts were reached it was extremely marked. In the third series, although the animals lived longer than in any other case, it is impossible to dogmatise from so small a number. Fourthly, creasote injected under the skin in tuberculous guinea-pigs had a markedly restraining effect, provided that the disease was not too far advanced. Repeated attempts were made to grow bacilli on serum from animals inoculated with tuberculous sputum from patients taking creasote in large doses either by the mouth or by means of the creasote chamber, but without success.

**J. Weiss** (*Centralbl. f. die gesammte Therap.*, March, 1894) reviews the present position of creasote in the treatment of tuberculosis. He holds that the drug does not exercise a direct influence upon the tuberculous process. In most cases under treatment increase of weight, lessening of cough, and improvement of appetite are observed, the last being especially striking. This applies not only to patients with slight disease, but also to advanced cases with extensive infiltration. Creasote does not appear to favour hæmoptysis when very freely used. If the drug is not borne, its carbonate in proportionally larger dose should be tried. Weiss concludes that creasote is not a direct specific against tuberculosis, but that it influences the disease indirectly by lessening secretion and acting as a stomachic. It is the best remedy at present known for the symptomatic treatment of phthisis.

**C. M. Merz** (*American Journal of the Medical Sciences*, 1894, i. 185) while admitting the value of creasote in tuberculosis, has failed to find inhalations of this drug as useful as he had hoped. In some cases they were detrimental in increasing the intensity of the faucial, pharyngeal, and pulmonary symptoms. They have proved of more benefit in apyrexial phthisis than in any other form of the disease. Over-exertion in inhalation must be guarded against most carefully. The temperature of the inspired air should be closely watched, and the initial dose should be quite small. Many cases are of such a nature as to lack the physical strength to use an inhaler. The amount of the drug that can be introduced into the system by this method is probably quite small. It is doubtful whether creasote administered by inhalation possesses any advantage over the other means of administering it as commonly practised.

**Linossier and Lannois** (*Sem. Méd.*, Feb. 7th, 1894) have shown that guaiacol is absorbed by the skin, as proved by its elimination in the urine. After the application of 2 grammes of guaiacol to

the skin, elimination by the kidney could be detected in a quarter of an hour; the proportion of guaiacol contained in the urine reaches its maximum in from an hour and a half to four hours after the application, decreases rapidly after from six to seven hours, and in twenty-four hours only traces can be found. The amount of guaiacol eliminated in the urine may amount to more than half the quantity applied to the skin. Absorption is favoured if the skin is covered with some impervious material.

**Stolzenburg** (*Berl. klin. Woch.*, Jan. 20, 1894) has tried guaiacol externally as an antipyretic, chiefly in phthisis. The guaiacol was rapidly painted on the skin, and an impenetrable bandage applied. Two cubic centimetres were found to be sufficient, and in weak patients only one should be used at first. In a few hours the temperature fell, with copious sweating; but it soon rose again, often with shivering, and even higher than before. In most cases the treatment had to be discontinued owing to the patient's objection. The fact of absorption through the skin is beyond question, and its effect is remarkable; but the continued use of the drug cannot be advised. No real influence on the disease could be made out, and large doses were liable to cause collapse.

**De Grazia** and **Casaretti** (*Brit. Med. Journ.*, Epit., 1893, ii. § 421) have investigated the action of the derivatives of creasote, benzoyl-guaiacol, carbonate of guaiacol, guaiacol carbonic acid, and carbonate of creasote, in phthisis. They have given these drugs to patients in various stages of the disease, by the mouth and by the rectum; seeking to ascertain their effects on the physical signs, on the various functional disturbances, on the quantity and quality of the sputa, on the proportion of bacilli contained in them, and on the weight of the body. Lastly, they have tried to ascertain which of the compounds is best tolerated.

1. Benzoyl-guaiacol, a crystalline, tasteless, inodourless powder, of slight solubility. According to Sahli, this substance passes through the stomach unchanged, being split up in the intestine into guaiacol and benzoic acid. Clinical trials by Sahli, Walzer, Hughes, and others, have led to somewhat conflicting ideas as to its efficacy. It is generally agreed that "benzosol" is well borne, even in large and repeated doses. One case of poisoning is, however, recorded by von Jaksch, in which the death of a diabetic subject was apparently due to its irritant effect upon the intestine; but this is the only bad result. The authors record their experience of the drug in four cases of phthisis, and this was highly favourable. The dose varied from 0.2 to 3 grammes daily, commencing with small quantities, which were gradually increased. In each instance there was a marked



improvement in the physical signs and in the symptoms, and a gain in weight.

2. Carbonate of guaiacol. This drug resembles "benzosol" in its physical characters. According to Seifert and Holscher, while it passes unaltered through the stomach in health, in the presence of the fermentation which so often complicates phthisis it is decomposed in that organ, where it acts as an antiseptic, reducing bacterial growth and greatly improving the patient's condition. Five fresh observations of these authors lend support to this view. Unpleasant symptoms were never caused.

With regard to the other drugs tried, the conclusions may be briefly stated as follows:—

3. Guaiacol carbonic acid, in a dose of 1 to 3 grammes daily, was well borne even if used for many days in succession, whatever might be the stage of the disease.

4. Carbonate of creasote was well borne by either the stomach or the rectum; and pure guaiacol, if given by the latter method, usually caused but little inconvenience.

With regard to all the above drugs, except "benzosol," there seems to have been no great advantage to the patient in giving them, as they in no way altered the physical signs or relieved cough, etc. "Benzosol," on the other hand, seemed constantly to improve the catarrh, cough, and expectoration, but it did not cause the disappearance of bacilli from the sputum.

Zawadzki (*Centralbt. f. inn. Med.*, May 5, 1894) reports a fatal case of acute poisoning from the medicinal use of creasote. A phthisical woman, aged fifty-two, was ordered 6 drops of creasote in milk three times a day. After three doses she suffered from difficulty of swallowing, gastric pain, vomiting, and diarrhoea, with distressing cough. On admission to hospital twenty-four hours later, the breath smelt of creasote, the lips were blue, dysphagia was marked, and the inside of the mouth was of a dull white colour in parts. Paralysis and anæsthesia of the palate, laryngeal paralysis, and analgesia of the left arm and parts of the left leg, were also present. Albumen and casts were found in the urine later. On the fifth day the patient died in a state of collapse. Two large erosions were found in the upper part of the œsophagus, and others about the pylorus; the stomach was red and injected; the kidneys showed evidence of acute nephritis; and the liver was the seat of cloudy swelling. As the patient had not taken more than 18 drops, an idiosyncrasy must have existed. Creasote does not mix with milk, and hence the eroding action seen in this case. It is best given in pill. The initial dose should not exceed 1 or 2 drops, which can be afterwards increased if desired.

The success which has thus far attended the therapeutic use of the serum of immunised animals has given an impetus to the further study of the treatment of specific infective diseases by antitoxins. **Viquerat** (*Brit. Med. Journ.*, 1894, ii. 718) calls attention to the popular opinion that asses' milk is of value in consumption, and that koumiss has been considered to give good results. Mares very seldom suffer from tuberculosis, and asses and mules are not known to contract it in ordinary circumstances; in fact, in them the injection of tuberculous material causes only some local swelling, followed by cicatricial induration, but not by suppuration or caseation. Tuberculous material injected into the jugular vein of the ass produces miliary tuberculosis of the lungs, but without fever; and there is no subsequent caseation. In asses examined forty-five days after such an inoculation no lesion is discoverable in the organs, and the bacillus cannot be demonstrated; the animal does not suffer from any illness, but on the contrary, shows "an extraordinary appetite." Taken by the mouth, tuberculous material does not produce either enlargement of the glands or intestinal lesions. Viquerat, therefore, concludes that the ass possesses a natural immunity to the tubercle bacillus, and that its blood and tissues contain a substance unfavourable to the development of tuberculosis. It appears to be the only species of warm-blooded animal endowed with this immunity. When inoculated with tuberculous material, it produces, Viquerat believes, a larger quantity of this antituberculous matter. Forty-five days after inoculation the blood of the ass possesses very great anti-tuberculous power. The only experiments which Viquerat has advanced in support of the view that the serum of asses thus treated has a curative power, were on some guinea-pigs. Such animals, after being rendered tuberculous, and subsequently submitted to injection every other day with the serum of the ass, recovered; and he stated that he had in his possession certain guinea-pigs that had survived in good health for a year. His proposal is to treat pulmonary tuberculosis, which has not yet reached the suppuration stage, by injecting under the skin every other day 10 c.c. of the serum of asses previously subjected to inoculation with tuberculosis in the manner described. It is said that of twenty-five patients thus treated, in thirteen the treatment has been concluded, and it is reported that twelve appear to be cured; and of the twelve cases remaining under treatment ten are stated to be improving. It is probable that an institute will be established at Côte-Drize, Geneva, for the continuation of the experiments and the treatment of out-patients. As yet it is impossible to form any opinion as to the value of this method.

**Lutz** (*Brit. Med. Journ.*, Epit. 1894, i. § 94) speaks well of his experience of the use of salol in phthisis, now extending over more than two years. About  $1\frac{1}{2}$  drachm of salol is given daily, in doses of from 20 to 30 grains; and latterly it has been found that 6 or 7 grains a day sometimes sufficed to produce similar results. The powder is given in capsule or wafer. The reactions of salol were found in the urine eight days after discontinuance of the drug. Care is required at first, and renal disease contraindicates its use. Occasionally nausea, aural symptoms, etc., are produced. Cases with high fever and much expectoration at first show no improvement; later, however, pyrexia and night sweats disappear entirely, this occurring in from seven days to one or two weeks. The relative proportion of bacilli is not changed, but the sputum becomes less, and in many cases almost ceases. Cough also diminishes. In the author's opinion salol appears to check disintegration of tuberculous material; but he does not attribute to it an antituberculous action, thinking that the antibacterial complications only are influenced, and that a mixed infection is thus converted into a slower and purer tuberculous process. For instance, increase of local pleurisies took place, and consequently probably infiltration continued, while actual destruction appeared to diminish. Even in severe cases the drug is of service and should be tried; in one patient where death appeared imminent, life was prolonged for more than a year, showing that salol is most useful in ameliorating the patient's condition. It must, however, be borne in mind that the prognosis in phthisis is always uncertain, and that an unexpected prolongation of life may occur apart from any special system of treatment.

**M. Cohn** (*Lancet* 1894, i. 1521) recommends the use of ichthyol in phthisis. This drug is cheaper than creasote, and has the advantage over both it and cod-liver oil of being better borne in many cases. He has seen great good from its use in more than 100 cases during the past two years, not merely owing to its antibacillary properties, but also from its remarkable effect on nutrition. He orders a mixture of equal parts by weight of ichthyol and water, and directs the patients to begin with four drops three times a day; before meals if they can bear it, if not, after meals. They soon become accustomed to the taste, which a little black coffee helps to cover. The dose should be gradually increased by a drop daily, until 40 drops are taken at once, and it should always be well diluted with at least a wine-glassful of water. The full dose must be continued for a long time.

**G. M. Carasso** (*Gazz. d. Osp.*, Nov. 2, 1893) advocates the use of peppermint oil in tuberculosis, previously suggested by



**L. Braddon** (*Lancet*, March, 1888). Continuous inhalations of the oil are combined with the internal use of an alcoholic solution of creasote with glycerine and chloroform, to which is added one per cent. of peppermint oil. In thirty-nine cases already treated, several in the third stage and with abundant bacilli, excellent results have been obtained, in some instances amounting to cure. The bacilli disappeared in from thirteen to sixty days; cough, expectoration, and sweating ceased, weight increased, and alterations in the physical signs took place warranting the belief that the disease was cured.

**A. Landerer** (*Brit. Med. Journ.*, Epit. 1893, ii. § 439) is well satisfied with the results of the treatment of tuberculosis with cinnamic acid, a method which he has used for the past two years and a half. He prepares a five per cent. emulsion with almond oil, yolk of egg, and common salt, though he has latterly used a five per cent. aqueous solution with equal if not greater success in tuberculous phthisis. The emulsion requires most careful preparation, and in its acid state will remain unaltered for some time. Microscopically minute crystals and diminutive oil globules should be seen, the former disappearing after the emulsion has been rendered alkaline by means of a 7·5 per cent. soda lye immediately before use. The emulsion is injected into the veins, preferably the brachio-cephalic or the cephalic, with a Pravaz syringe. No immediate symptoms should be produced, and any resulting depression indicates that an excessive dose has been given. The treatment is said to be useless in phthisis which has advanced beyond the first or second stage. The course of the malady while under treatment should be as follows: if the dose has been well judged, amelioration of symptoms should be noticeable after the fifth or sixth injection; and in about three weeks, improvement in physical signs. The dose varies with the condition of the patient; but as a rule from 0·1 to 0·4 c.c. can be used about twice a week, and this amount is rarely exceeded. The treatment should in every case be continued for at least three months. No permanent ill-effects were at any time produced, and temporary disturbances were due to either excessive dose, want of alkalinity, or insufficient care in the manufacture of the emulsion. In tuberculous affections of the larynx, intestine, glands, joints, and skin, similar success is recorded. When possible, the intravenous treatment is supplemented by local, the acid being applied dissolved in glycerine or alcohol. As to the histological changes which take place, the first is an increase of leucocytes in the blood, causing aseptic inflammation around tuberculous foci, which in consequence become encapsuled in about three weeks. Infiltration into the

nodules then takes place, with formation of blood-vessels, leading to gradual absorption, cicatrisation, and sometimes calcification. After a few months the bacilli become difficult to stain, and they ultimately disappear.

In pursuance of some observations upon the possibility of the transmission of tuberculosis through the contamination of cigars from the saliva of workmen in the process of manufacture, **Kerez** (*Centralbl. f. Bakt.*, Jan. 16, 1894) has made experiments upon the influence of tobacco upon the tubercle bacillus. Tuberculosis was produced in guinea-pigs by inoculations with the washings of infected cigars which had been kept not more than ten days at the usual temperature of the factory; but no tuberculosis resulted in animals treated with similar material more than ten days old. On the other hand, some of the same sputum used for the infection of the cigars retained its virulence up to the fourth week when simply dried on paper. Hence it appears that tobacco has a germicidal influence upon the tubercle bacillus, although a slow one; and that, as cigars are usually kept for more than ten days after manufacture, there is practically no risk of the persistence of the vitality of any bacilli with which they may accidentally have become contaminated.

Tuberculin still finds its advocates.

**E. Thorner** (*Zur Behandlung der Lungentuberculose mittels Kochscher Injectionen*, Berlin, 1894) has confidence in this substance in the treatment of pulmonary tuberculosis, and gives what he considers to be the necessary cautions for the prevention of ill-effects. He does not, however, quote details of cases or statistics to allow of a comparison between his results and those obtained by other methods of treatment.

In a discussion on a paper by the same author in the *Verein f. innere Medicin* (*Deutsch. med. Woch.*, Sept. 14, 1893), **Leyden** said that only here and there could a cautious use of tuberculin be allowed, and he felt compelled to say that he did not share Thorner's opinions; and **Ewald** remarked that both clinically and experimentally tuberculin exhibited no specific action, and that it had been abandoned owing to the dangers connected with its use.

**Schiess Bey** and **Kartulis** (*Zeit. f. Hygiene*, vol. xv., pt. 2) speak favourably of the tuberculin treatment in Egypt. They find that in Egypt it is harmless if commenced with small doses, and that even advanced cases may derive benefit from it. On a comparison of their tuberculin cases with others in which this substance was not used, their conclusions are in favour of tuberculin. By its aid they hold that early tuberculosis of the lungs is certainly cured in a few months, whilst advanced cases may

also recover, although more slowly. The treatment is not adapted to very severe cases with cavity, hectic fever, and night sweats. These observers conclude that the Egyptian climate is especially suitable for the tuberculin treatment.

The strongest recent advocacy of tuberculin in the treatment of phthisis comes, however, from the pen of L. P. Barbour, of Mont-eagle, Tenn. (*Therap. Gaz.*, July 16, 1894, p. 438), who gives an admirable account of its effects in his own case. The testimony of reliable men agreed that tuberculin did exert a specific effect upon tuberculous tissue; and the author reasoned that as a result of this specific action, under proper conditions, benefit might be hoped for. Most of these men reported an occasional cure. If in but one case of phthisis tuberculin stood as the curative agent, given the same conditions, it would cure other patients. Upon finding that the disease had developed in his own case, the writer placed himself under treatment by tuberculin. The earliest symptoms developed in June, 1892. The general health remained good till May, 1893, and then began a gradual failure of strength; and through June and July ground was lost rapidly, in spite of cod-liver oil and creasote—the latter being taken from June 1st to August 1st in daily quantities of from 45 to 60 minims. On August 10th, examination of the chest showed dulness with abundant moist *râles* over the upper and middle lobes of the right lung, and a similar condition over about the same area on the left side; the larynx was the seat of considerable tuberculous deposit, and a small ulcer existed; and at the base of the tongue was another tuberculous ulcer. The microscope revealed numerous bacilli. The temperature rose to about 100° F. daily. On August 13th the tuberculin treatment was begun, at the Winyah Sanitarium, Ashville, N.C. The first dose was  $\frac{1}{20}$  milligramme, the second was  $\frac{1}{10}$  milligramme. Then three injections were given weekly for the next 27 weeks. The increase was at first by  $\frac{1}{10}$  milligramme, then by  $\frac{5}{10}$ , then by 1, 2 $\frac{1}{2}$ , and finally by 5 milligrammes. The injections were given at 10 a.m. and at 8 p.m. The chest was carefully examined for local reaction, which occurred 22 times, an average of once for every increase of dose. Sometimes, however, reaction would occur two or three times under the same dose, and at others there would be two or three increases without a reaction. If a given dose produced the slightest general reaction, it was at once reduced. This occurred on one occasion (Oct. 9th), when 2 milligrammes were injected for the first time. The temperature went a little higher on that day than it had done during the preceding three weeks, and for two



days there was a feeling of being tired and worn out ; while the expectoration became very profuse. This was the only time in the whole course of treatment that any depressing effect was experienced. At one other time (Dec. 13), when 6 milligrammes were injected, the dose was reduced because of too violent local reaction. No *râles* had been heard in the chest for two months previously ; but after this injection they were quite plentiful, and the bronchial character of the breath-sounds was decidedly more marked ; the sputum was increased for a day or two, but there was no systemic disturbance. A slight increase of expectoration was not rare on the morning following an injection. The last dose was 25 milligrammes on March 5th, which produced no reaction.

Improvement was slow, but continuous throughout. During the first month the weight increased 5 lbs. ; two of these were lost in the next two weeks. After that time the gain was steady till December 25th, when the weight was 123 lbs., as much as it had ever been during the patient's life. Since then it has varied from 122 to 125 lbs. Cough and expectoration began to lessen after the first month ; by October 1st cough was almost gone, and the sputum was reduced to a teaspoonful a day. Since the middle of December there has been no cough and never more than a trace of sputum. After three months the number of bacilli had materially lessened, and after the fifth it was seldom that any could be found, and the few discovered were degenerated forms. The temperature gradually came down to nearly normal, and for several months at the time of writing the daily range had been from 97° to 99° F.

Improvement in physical signs kept pace with that in other respects. *Râles* had disappeared after ten weeks ; the broncho-vesicular breathing gradually softened, until respiration became normal, except in the upper lobe of the left lung, where it is much improved. There is no dulness on percussion. The ulcer at the base of the tongue healed rapidly ; the laryngeal ulcer proved obstinate, but was perfectly well by the middle of January.

While under treatment himself, Barbour had every opportunity of watching other patients. He found the same improvement in their lungs as reported in his own case : cessation of *râles* and lessening of bronchial breathing. In the larynx the improvement was demonstrated to the eyes ; during reaction an increased redness of the tuberculous area could be seen, and as time passed a gradual disappearance of the deposit and a healthier condition of the ulcer were noted, until its complete cure ; and in some cases the tuberculous larynx healed when the lung condition was such

as to make ultimate recovery hopeless. Coincidentally with the signs of improvement related, there was the same lessening in number of the bacilli and degeneration of form, with final disappearance.

That tuberculin, which produced an intense congestion of the tuberculous area when given in the large doses used at its introduction, should produce a stimulant effect in small doses, seemed a logical assumption; and it was demonstrated to the author that there is a point where the doses are large enough to maintain this slight stimulant effect, and yet so small as to produce no systemic result. A "local reaction" is evidence of this stimulation, which could be detected by the increase in the bronchial character of the respiration and in the number of the *râles* occurring some eight or ten hours after an injection. The writer's observations have convinced him that this continued gentle stimulation assists in healing ulcerated areas and in producing absorption of tuberculous deposits.

He does not, however, claim that the excellent results obtained were due to tuberculin alone. The patients had the help of a good climate, were treated with the pneumatic cabinet, and had been carefully watched as to diet and exercise. The influence of climate in overcoming phthisis is unquestioned, though the amount of credit it deserves in his own case is problematical. For nine years he had lived on the Cumberland Plateau, in Tennessee, at about the same altitude and latitude as Ashville, and there he contracted the disease. He is also keenly alive to the importance of good nutrition. Nothing that will make for the better can be neglected in the fight against consumption; and his diet was as suitable before he came to the Sanitarium as it was afterwards. Allowing to the full, however, what may be accomplished by good climate, good diet, and careful attention to rest and exercise, still statistics show a woful fatality. And he further knows that in his own case all these precautions and methods, applied with intelligence born of careful investigation, were failing him. With his own senses he observed the effects of tuberculin in many patients, and saw results obtained *as a rule* that are the exception under any other treatment. In view of all this, he can but credit tuberculin with an important part in his own recovery, and in the gratifying results he witnessed in the large majority of his fellow-patients.

Conclusive proof of the diagnostic value of tuberculin as an agent for the detection of tuberculosis (*Brit. Med. Journ.*, 893, ii. 1,259) has been furnished to the Royal Agricultural Society in a report upon some experiments with Lord Spencer's herd of

Jerseys at Althorp. It was used after several of the cattle had fallen victims to tuberculosis; and on inoculation of the whole herd, every animal, with one doubtful exception, showed the symptoms indicative of tuberculous infection. Before slaughtering them all, Lord Spencer's agent wished to satisfy himself beyond doubt of the trustworthiness of Koch's method of diagnosis, and two animals, a heifer and a cow, were first killed. *Post-mortem* examination revealed unmistakable evidence of the disease; and thereupon the whole herd was destroyed, with the same result.

### 3. Treatment of special symptoms--Night sweats.

The treatment of the night sweats of phthisis is discussed by Conkling in a valuable paper (*Brooklyn Med. Journ.*, July, 1894; *Therap. Gaz.*, Sept., 1894, p. 626). As the result of wide experience he finds aromatic sulphuric acid at times useful; but it cannot be given for any length of time, it often causes constipation, and it may interfere with special lines of treatment. It may be taken in water or in sweetened water: either, in one dose of 10 to 15 minims at bedtime, or in three doses of 7 to 10 minims in the late afternoon, early evening, and at bed-time. This remedy lessened sweating in all cases, but cured it in less than half. It never stopped it at once; diminution always came before cessation.

Camphoric acid proved very uncertain, without any apparent cause; it sometimes would succeed where before it had failed. It had no after-effects. The dose given was 30 grains in water at bed-time. It lessened the sweating in a very few, and was quite successful in a little over one-third, of the administrations; but even in some of these the perfect cutaneous dryness produced by some other remedies was not noted.

Chloralamid was found to be a very valuable remedy; it produced sleep, checked cough, and stopped sweating, and it had no disadvantages, either producing the desired result or being inert. It was given in one dose of 30 or 35 grains at bed-time, either in powder or as Schering's elixir. It succeeded in over one-half the administrations, diminished sweating in less than one-fourth, and failed altogether in less than one-fourth. Even in some cases the first administration was often successful.

Muscarine was the least successful of all the remedies; it had no after-effects. It was given in pill at bed-time in doses of  $\frac{1}{60}$  grain. It stopped sweating in only 20 per cent. of the administrations, checked it slightly in 40 per cent., and failed absolutely in 40 per cent.

Oxide of zinc was very useful; often the first dose would stop the sweating. But if the first few doses did not succeed,



the later ones seldom did. It had no after-effects. It was given in pill at bed-time, in doses of  $2\frac{1}{2}$  grains. It cured the sweating in two-thirds of the administrations; in the others it either slightly checked it, or failed entirely.

Agaricin was the most successful of all the drugs; it gave excellent results in young subjects. Under its use the skin remained without suspicion of activity. It was very successful in cases where during its use the sweating had disappeared, and had returned after the drug had been discontinued for a time. Repetition did not weaken its power. It can be used for any length of time, and has no disadvantages. It was given in doses of  $\frac{1}{12}$  grain, in pill; one pill at bed-time, or one late in the afternoon, and a second in four or five hours. It entirely stopped the sweating in three-fourths of the administrations, checked it in one-eighth, and failed in the remainder. Atropine and belladonna are not the best anidrotics; atropine acts painfully on the heart, and has after-effects: restlessness, insomnia, disturbing dreams, and modifications of secretions were noted; and these disadvantages sometimes counterbalanced even the good results of checked perspiration. It was given in tablet or in solution, in doses of  $\frac{1}{60}$  grain, or less. It lessened or stopped sweating in over two-thirds of the administrations. Tincture of belladonna possesses some of the disadvantages of atropine: it caused delirium, aggravated the distressing symptoms of laryngeal tuberculosis, and increased diarrhoea due to intestinal ulceration. The dose used was 7 to 10 minims, commenced in the afternoon, and repeated two or three times. It stopped sweating in 70 per cent. of the administrations, lessened it in 20 per cent., and failed in 10 per cent.

The smallest possible dose of a remedy was always used. The best results were obtained from agaricin, which must be of the purest quality.

J. Sacaze (*Brit. Med. Journ. Epit.*, 1894, ii. § 248) has called attention to the fact that when chloralose is given in phthisis as an hypnotic, it also commonly most efficiently controls the night-sweating. Not only has sleep been induced, but the perspirations, previously very profuse, have entirely ceased. This effect has persisted during the whole time of administration of the drug, the sweats returning as freely as before whenever it has been discontinued. Sacaze has also obtained almost identical results in certain other chronic affections of the lungs which are sometimes accompanied with profuse sweating, such as chronic bronchitis, foetid bronchitis, and dilatation of the bronchi. He thinks, however, that it would be rash to conclude that chloralose

would be as efficacious in all cases of abnormal secretion of the sweat-glands. He does not attempt to explain how the drug checks sweating in the class of cases referred to. He thinks that possibly some modification of the infective processes going on in the lungs may play a part. As a rule, small doses were given—at first, cachets of 50 centigrammes, one of which was taken when the patient wished to go to sleep, the dose being repeated in half an hour if no effect was produced, and twice afterwards with the same interval of time, making a total of 4 cachets if necessary. In some few cases four doses of 10 centigrammes were given in the same night. In cases of obstinate insomnia, the author suggests that cachets containing 5 centigrammes of chloralose with 15 to 20 of sulphonal should be given; such a combination having the same effect both as regards the production of sleep and the suppression of sweats. When febrile attacks occur in the evening, a small quantity of quinine may advantageously be added to the chloralose.

#### IV.—DISEASES OF THE PLEURA.

In discussing the treatment of pleuritic effusions, **T. G. Ashton** (*Therap. Gazette*, Sept. 1894, p. 597) refers to the tendency of the day to assign to tuberculosis a pre-eminent position in its causation, and points out the danger of losing sight of the fact that agencies other than the tubercle bacillus hold important causal relations to it, thus limiting the therapeutic management of the disease. He is of opinion that many cases are rheumatic in their origin, and quotes Churton, Fiedler, and Strümpell in support of this view. He therefore insists upon the value of the salicylates in pleurisy, as testified by Köster, Jaccoud, Lamercy, Strümpell and Dock, which by some observers are believed to exercise a specific influence upon the effusion, apart from any rheumatic origin of the inflammation. The salicylates are usually given in large doses. Aufrecht recommends salicylic acid in gramme doses five or six times daily, the patient being kept in the recumbent posture. In two or three days the quantity is reduced to 3 or 4 grammes daily, and so continued for eight or ten days. Köster gives the sodium salt in doses of 1·5 gramme three or four times daily; while others recommend salol as being better tolerated by the stomach.

Mention of the so-called dry method of treatment of pleuritic effusion must not be omitted. Its efficacy depends upon the depletion of the blood-serum, so that it will absorb from the tissues the fluid necessary for it to regain its normal consistency.

This depletion is brought about by giving fluids sparingly by the mouth at the same time that the watery constituents are taken from the blood by the use of concentrated saline solutions. By some this treatment is supplemented by the administration of diaphoretics and dimetics. Under these conditions the blood-serum absorbs fluid from the pleural sac, and thus very large effusions are frequently rapidly removed.

In causing the absorption of pleural effusions by the use of drugs, the question arises whether harm may not be done to the system by the distribution to the tissues of a fluid that may have undergone some change rendering it noxious; and this point has been specially discussed in the case of tuberculous pleurisies, where the possibility of thus exciting acute miliary tuberculosis must be recognised. Some authorities, indeed, go so far as to hint at the advisability in every case of pleuritic effusion of withdrawing the fluid by mechanical means in order to avoid the risk of such a possibility. Thus Rosenbach says that in the operation of aspiration it is immaterial that we withdraw from the economy a certain amount of albuminous material, because we do not know what retrogressive changes it may have undergone, and because there is the possibility that by the quick absorption of this substance into the circulation a latent pulmonary tuberculous deposit may receive renewed stimulation and pursue a rapid course. From this point of view, the advisability of the routine mechanical withdrawal of effusions of tuberculous origin deserves serious consideration.

When in the course of any pleuritic effusion evidence arises of embarrassment to respiration or to circulation, and even in the absence of these symptoms, when the effusion is massive, no matter what may have been its cause, the fluid must be removed by mechanical means. When the contents of the pleural cavity are serous, this is usually accomplished by aspiration.

The treatment of purulent effusion is in reality a surgical subject, and calls for but brief reference here. It is true that in empyema aspiration alone is sometimes successful, and this is more likely to occur in children; but the author most rightly goes on to say that, as a general rule, it is but trifling with the life of the patient to trust that a purulent effusion will undergo absorption. It is in reality an abscess, and demands the treatment of an abscess in any other locality—*i.e.*, incision and drainage.

The following conclusions are drawn:—1. That the tubercle bacillus is the cause of the majority of cases of pleurisy. 2. That a certain number are due to rheumatism. 3. That in the treatment of the rheumatic cases the salicylates should be



employed, as having a specific action in such instances. 4. That the salicylates are of value in cases of other than rheumatic origin, and that therefore their use should not be limited to such cases. 5. That, as a rule, purulent effusions demand evacuation and free drainage.

**Aufrecht** (*Therap. Monatsh., Therap. Gazette*, Jan. 15, 1894) is strengthened by his subsequent experience in his earlier belief in salicylic acid in the treatment of pleurisy. He insists that the acid itself must be used, and not the sodium salt, which is weaker and produces marked secondary effects.

**W. Osler** (*Amer. Jour. of the Med. Sciences*, 1894, i. 80) considers that in the treatment of tuberculous pleurisy the indications are twofold. First, to limit and control the exudate, and to promote its absorption. In the early stage it is sufficient to allay the pain, if severe, with opium; to reduce the fever, if high, by sponging, and to keep the bowels freely opened. It is doubtful whether the salicylates are deserving of the confidence which many claim for them. Fluid remains in the chest because it cannot get out owing to blocking of the lymph paths. Absorption from the pleura goes on chiefly, if not entirely, from the costal layer. Good results are seen from putting the patient on a dry diet, and giving brisk saline cathartics. Diuretin, when it acts, is useful in the same way. If at the end of ten days the fluid persists, and is up to the level of the fourth rib in the erect posture, aspiration is advisable, and may be repeated in a few days if the fluid re-accumulates. There are no greater risks in the tuberculous than in the simple sero-fibrinous cases, and it is very important to relieve the lung early of pressure. The risk of the compressed organ becoming the seat of tuberculosis is not great; more serious is the danger of its being bound down by firm adhesions. Gentle counter-irritation of the skin is useful in this later stage, stimulating the lymphatics of the costal pleura. In chronic sero-fibrinous effusion with thickened membrane, the fluid re-accumulates rapidly, and aspiration may have to be performed many times; and pulmonary gymnastics should be practised. If pus is present, the case must be transferred to the surgeon for drainage. The second indication is to improve in every possible way the nutrition of the patient, so as to favour the healing of the tuberculous process. No doubt, as in pulmonary and peritoneal infections, many instances of tuberculosis of the pleura recover, and leave no more damage than that due to slight thickening of the membrane.

# THE TREATMENT OF NERVOUS AND MENTAL DISEASES.

BY ERNEST S. REYNOLDS, M.D. LOND., M.R.C.P.,

*Senior Physician to the Ancoats Hospital, Manchester; Physician to the Manchester  
Workhouse Infirmary and Lunatic Wards.*

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DURING the past year but few new drugs have been introduced for the relief or cure of nervous disorders. The injection of organic fluids, especially the testicular fluid of Brown-Séquard, has been tried by many excellent observers, and, as was to be expected, has been found wanting. That it may possibly, in some cases, act beneficially by pure suggestion, as we have before observed, is probable, but that it is a genuine therapeutic agent is more than doubtful. Attention may be directed to many observations made with chloralose, which seems to be a drug worthy of even more extensive trial. Several good papers have been written on the influence of syphilis in the causation of nervous disease, and as this subject has a direct bearing on treatment, abstracts of these papers have been included in this article.

The subjects will be considered in the following order :—

- I.—Hypnotics.
- II.—The Treatment of Pain, including Headache and Sciatica.
- III.—The Treatment of Epilepsy.
- IV.—The Treatment of Chorea.
- V.—The Treatment of Locomotor Ataxia.
- VI.—Syphilis as a cause of Nervous diseases.
- VII.—The Treatment of Tetanus with antitoxin.
- VIII.—Electricity in Nervous diseases.
- IX.—The Injection of Saline Solutions and Organic Fluids in Nervous diseases.
- X.—The Treatment of Alcoholism.
- XI.—Miscellaneous.

## I.—HYPNOTICS IN GENERAL AND MENTAL DISEASES.

### 1. Chloralate.

**Bassel** (*Union Méd.*, Sept. 2, 1893) has used this drug as an hypnotic. He reports that sleep follows rapidly but is light, and no heaviness is left afterwards. The drug is given in tabloids, the initial dose being 3 grains at night, and increased to 5 or 6 grains if the first dose has been insufficient and has not caused vertigo or tremors. It should be given very guardedly in organic disease, and it appears to be contra-indicated in *tabes dorsalis*. Its action continues for several nights in succession, the sleep, however, not being so good as on the night when it was first taken. It also possesses an analgesic action.

### 2. Chloralose.

**Ferrannini** and **Casaretti** (*Riforma Medica*, Aug. 11, 1893), experimenting with this drug, conclude as follows:—(1) Its action in animals is first a partial paralytic stage in which the reflexes are exaggerated; then a paralytico-hypnotic stage; and finally, if the dose is very large, a paralytic and convulsive stage ending in death; the state of the heart and blood-pressure is not altered except when slowing of respiration becomes very marked. (2) Chloralose acts especially on the cerebral cortex, causing sleep with depression of motility and general sensation. The exaltation of reflex excitability observable at certain stages is due to a direct stimulation of the corresponding nerve centres rather than to a depression of the inhibitory centres. The clinical results are:—Chloralose is highly successful in insomnia from over-excitement of the psychical centres, and is preferable to chloral in the insomnia of heart disease; it is better tolerated by the digestive tract than any other hypnotic. It acts well in insomnia due to disorders of the digestive tract; is inferior to morphine if the insomnia is due to pain; it has no cumulative action, and acts equally well if given several evenings in succession. The dose is 2 to 6 grains given by the stomach; 3 to 6 grains given by the rectum, and  $\frac{3}{4}$  to  $1\frac{1}{2}$  grain given hypodermically. If larger doses than these are given, symptoms of poisoning similar to those seen in animals may occur. The dose may be increased, but this must be done gradually by  $\frac{3}{4}$  grain at a time and the effects noted; but in no case should the dose exceed 18 grains either by the mouth or rectum. In certain nervous disorders, such as hysteria and chorea, the drug may calm the convulsive phenomena when given in the above-mentioned doses.

**Morrill** (*Boston Med. and Surg. Journal*, Nov. 16, 1893) has prescribed chloralose in twenty cases of insomnia, with good



results in almost every instance. Properly used in cases uncomplicated by hysteria or alcoholism, he thinks the drug is safe, produces no habit, and induces refreshing sleep with no disagreeable after-effects. The best method of administration is to give a cachet containing 3 grains, one hour before sleeping-time, repeating it if necessary. The largest dose he has given is 12 grains. As a rule 3 grains will ensure from 5 to 9 hours' sleep. Morrill says chloralose is more reliable than chloralamide, and that in heart disease it acted well.

Chambord (*Rev. de Méd.*, June, 1894) says that amongst the complications following the use of chloralose are psychical and psycho-motor manifestations such as automatic actions and somnambulism, and motor disturbances such as tremor. He says the drug is almost a certain hypnotic, but its action is at times variable. Thus a minute dose such as  $1\frac{1}{2}$  to 3 grains will sometimes produce a sleep lasting several hours, whereas at other times relatively large doses have no hypnotic effect. In insomnia due to cough or to thoracic pain accompanying influenza, acute bronchitis or phthisis, chloralose in small doses seems to answer well. It is not an analgesic, and therefore succeeds less well if pain is present. In the dyspnœa of chronic pulmonary disease and of cardio-vascular disease, good hypnotic results have been obtained. It has acted well in cases of hysteria, epilepsy, neurasthenia and mental affections; but in three cases of alcoholic insomnia the effect was only moderately good. A quiet and soothing effect has been noted in several affections of the central and peripheral nervous system. In addition to its therapeutic action, it provides a means of dissociating the most exalted and differentiated functions. Some such diagnostic value has been attributed to it in hysteria, manifestations of this disease having appeared under its action. One drawback of its use is its uncertainty as well as its power of producing delirium and convulsive attacks (never very serious in themselves) during sleep. It has been known to increase the inco-ordination of *tabes dorsalis* and the tremor of *paralysis agitans*. In painful affections and in alcoholic insomnia it cannot replace opium. In insomnia and cerebral excitement it can compete with chloral. It is especially useful in cardio-vascular affections even in their asystolic stage.

### 3. Chloralose in mental disease.

Rossi (*Riv. Sp. di Fren. et di Med. Leg.*, vol. xix., fasc. ii., iii., Oct. 1, 1893) has used chloralose in forty patients of both sexes suffering from mental disease. There were in all 250 observations; the dose varied from 4 to 15 grains, given in solution or powder, in the day-time or at night. He concludes:—

Chloralose, given in doses of  $4\frac{1}{2}$  to 6 grains in the day-time, is not really useful in lunatics with true insomnia, as it only causes drowsiness, but larger doses of 10 to 12 grains have an effect. Given at night it almost always induces sleep in from half to one hour and a half. It is most active in cases of depression, but is not so useful if there is excitement. The sleep is quiet but not very deep. No alterations of pulse or respiration were observed; on the other hand, the action of the drug on the cerebral circulation (which was studied on a patient with traumatic epilepsy who had a hole in the parietal region of the skull) appeared to be to increase tonicity. This effect manifested itself in a diminution both in the frequency and the amplitude of the pulsations. If given with care there are no unpleasant effects. The drug has no manifest influence on the course of the mental disease, but given frequently in small doses it appears to be useful in hallucinations.

**Ohmjelewski** (*Medicinsk. Obosrenje*, No. 24, 1893) has tried this drug in seventeen cases of mental disease, including simple and periodical mania, senile dementia, paranoia, melancholia agitata, etc. After the drug was given, sleep resulted, as a rule, in about forty minutes after administration, and lasted four to ten hours. In three cases transient tremor of the upper limbs was observed before the patient fell asleep; in five cases considerable perspiration occurred. No ill effects as regards the gastrointestinal canal were noticed. In two cases much excitement followed the administration of the drug. On the whole, the author looks upon chloralose as a valuable remedy in cases of mental disease, and one specially likely to be useful where chloral and sulphonal are contra-indicated.

**Cappelletti** (*Mem. dell. Accad. delle Scienz. Med. in Ferrara*, lxvi., No. 4) has made numerous experiments on the action of chloralose in animals and man. In the latter it was only tried on asylum patients suffering from insomnia, the dose given at first being about 3 grains. The sleep produced was, as a rule, calm and uncomplicated. In cases of slight insomnia 3 to 6 grains were sufficient, but in severe insomnia 12 to 18 grains may be necessary. Sleep came on in about half an hour after taking the drug, and was preceded by a period of pleasant drowsiness. Hysterical patients were found to be particularly susceptible. The small doses mentioned produced a sleep of from six to seven hours; large doses, on the other hand, often produced convulsive attacks without sleep. It is particularly efficacious if given in the evening. During sleep the reflexes are generally wanting, but in certain cases are present; the appreciation of tactile and painful sensation remains unaltered, as do the pulse,

respiration, and temperature. In most cases the sleep resembled physiological sleep, but if large doses have been given there may occur flushing of the face, epileptiform convulsions, tremors resembling those of paralysis agitans (during sleep), headache, uncertainty of speech, and urticaria (after return of consciousness). Care must be taken to give only small doses to the feeble and hysterical. Chloralose as such does not appear in the urine.

#### 4. Poisonous effects of chloralose.

**Lombroso** (*Riforma Medica*, No. 131, 1893), while admitting that chloralose is one of the least injurious of narcotics, denies that it is entirely harmless. After the administration of 4 grains he has seen in the case of an intelligent girl the occurrence of tremor, followed by complete loss of memory; in another case the same dose caused intense prurigo; while in a third case a dose of  $7\frac{1}{2}$  grains was followed by symptoms of paresis with threatening asphyxia.

**Watson Williams** (*Practitioner*, vol. i., 1894) reports the case of a lady suffering from neurasthenia to whom he gave 10 grains of chloralose, which was followed by sleep, but with bad dreams. The next night she again took 10 grains, and in half an hour became restless and began calling out. In two and a half hours she was in a state of acute delirious mania, but apparently unconscious; the pulse was good. Morphia ( $\frac{5}{12}$  grain) did not quieten her, and she continued excited for five hours and a half, when she suddenly recognised her husband and recovered completely, having been unconscious of what had been going on. These effects correspond to the mental excitement with increased reflex sensibility seen in dogs by Richet and Hanriot. In **Lang's** case (*Brit. Med. Journal*, vol. ii., 1893), a woman who had taken 10 grains of chloralose, there were no mental symptoms except loss of consciousness, but she showed signs of irritation on attempts being made to waken her, and the face was congested and blue; she recovered in about three hours, with only a slight headache.

#### 5. Codeine and morphine compared.

**Solis-Cohen** (*Philadel. Med. News*, 1893, vol. i., p. 98) says that the dose of codeine sulphate mentioned in books is too large. He gives  $\frac{1}{16}$  grain, and rarely exceeds  $\frac{1}{2}$  grain. The drug may be repeated much more frequently than would be safe with morphine. It is less likely to produce a morbid habit, and if used for long periods does not give rise to distressing results. Its sedative and hypnotic results are greater, and its anodyne and narcotic effects less than those of morphine. Some patients who exhibit an



idiosyncrasy for morphine can take codeine, but this is not invariably the case.

### 6. Duboisin in insanity.

**Rabow** (*Therap. Monatsh.*, Aug., 1893) thinks that this drug contains such active elements as hyoscyamine and hyoscyne, and probably other alkaloids. He gave the sulphate on 400 occasions as a sedative and narcotic in lunacy practice. The result was favourable, and Rabow prefers the drug to hyoscyne. Nevertheless, long-continued use of the drug may produce unpleasant consequences. With excited patients  $\frac{1}{120}$  to  $\frac{1}{60}$  grain invariably produced a narcotic effect and caused sleep, but the sleep produced was not refreshing, and duboisin is not indicated as an ordinary narcotic. An aqueous solution containing 1 in 1,000 was used, and if given during several consecutive days the dose must be increased until the third or fourth day, when, should further sedative treatment be required, another drug must be substituted. The unpleasant symptoms complained of were anorexia, headache, giddiness, etc., and dilatation of the pupils and dryness of the throat were also present. Beneficial effects on the general mental malady were never observed, but with periodic maniacal attacks their recurrence appeared occasionally to be suppressed by the timely use of duboisin. The author thinks the drug is not a pure narcotic but a sedative, and recommends caution in its use.

**Mongeri** has written a monograph (Milan, *Tip. Capriolo*, 1893) on the use of duboisin in mental disease. It should be used as a sedative in the maximum dose of  $\frac{1}{40}$  grain and a minimum of  $\frac{1}{120}$  grain. It is preferable to the other hypnotics on account of its prompt action and the ease of its administration. It should be given in the evening, and may be used in all forms of active insanity, especially in furious mania and acute alcoholism. It is useless in the asthenic forms and those accompanied by depression.

**Marandon de Montyel** (*Arch. de Neurol.*, Sept., 1893) gives notes of thirty-five cases of insanity treated by him with this drug for periods ranging from several weeks to four months. The dose was from  $\frac{1}{60}$  to  $\frac{1}{30}$  grain twice daily. He found that the sedative action of the drug was most marked in cases of general paralysis of the insane, chronic mania, and acute melancholia. In several instances, especially in general paralysis, tolerance soon became established, and the drug was then useless, even when the dose was increased. The gastric derangements, such as vomiting of food, and the great emaciation observed by the author as the effects of duboisin, convince him that it is not a suitable medicine for prolonged administration.

### 7. Hyoscine hydrobromate.

Gordon Sharp (*Practitioner*, Jan., 1894) says that, although hyoscine is an isomer of atropine and hyoscyamine, it is supposed to differ widely from them in its physiological effects, and many cases have been reported of its beneficial action as a motor calmative, cerebral sedative, and hypnotic in delirium. He says that in his hands, however, the clinical effects resembled in every way those of atropine. Some of the symptoms observed in various cases from injections varying from  $\frac{1}{75}$  to  $\frac{1}{60}$  grain were increased respirations and pulse, dry throat, dilatation of the pupils, coma (fatal in one case), jerkings of the limbs, and alarming delirium. He thinks it can hardly be recommended as a safe hypnotic.

### 8. Somnal in insanity.

Memmo (*New York Journal Nerv. and Ment. Dis.*, Feb., 1894, p. 117) says by the use of somnal he has obtained good results, especially in epileptic mania, paranoia, alcoholic psychoses, mania, etc. It has many times shown its superiority over chloral sulphonal and trional because of its hypnotic action, and because it was better tolerated and left no after-effects.

### 9. Sulphonal in insanity.

Scally (*New York Journal Nerv. and Ment. Dis.*, Feb., 1894, p. 117) has used this drug for its hypnotic effect in excitement during attacks of mania, post-epileptic mania, recurrent mania, chronic mania, and also in melancholia. It is only good when, from great restlessness or excitement, sleep is absent. In the recent cases of acute mania, when sleep was absolutely necessary, it has never failed. Given in 1-drachm doses, preferably in whisky, it gave six to eight hours' sleep, and motor sedation for eight to twelve hours after waking. Sleep came on in one hour, and no bad results were seen.

### 10. Hæmatoporphyrinuria after sulphonal.

Stern (*Deut. med. Woch.*, Mar. 8, 1894) relates the case of a woman who had at first 15 grains and afterwards 30 grains of sulphonal every evening for three months, with occasional intermissions. When the total amount taken was 5 ounces the urine became dark-coloured, and fatal coma supervened in a week's time. There was found a toxic nephritis with necrosis of epithelium and hæmorrhages in the kidneys. In the presence of kidney disease sulphonal should be given with great caution, and in all cases of prolonged administration the urine should be carefully watched.

### 11. Trional.

Koppers (*Intern. klin. Runds.*, 29—30, 1893) used trional in twelve patients, and found as follows:—In most cases of simple

insomnia 15 grains were sufficient to induce sleep within half an hour; 20 or 30 grains may be given if necessary, but with still larger doses the effects did not seem to increase proportionately. Where pain is present, but little sleep results. Owing to the rapidity of its action, it is best given at bed-time in some warm vehicle such as milk or tea. The after-effects consisted only in slight heaviness in the morning, owing apparently to the direct action of the drug on the cortex of the brain, and some slowing of the heart's action. If necessary it can also be administered *per rectum*, the action not being lessened thereby.

**Rychlinski** (*Kronika Lekarska*, Feb., 1894) tried trional in fourteen cases of insomnia in neurotic or insane subjects, in doses varying from 7 to 60 grains. The total number of observations amounted to one hundred. In several cases he carried out comparative experiments with other hypnotics such as sulphonal, chloral hydrate, and duboisin sulphate. He found that trional acts well, especially in cases of insomnia due to functional disturbances of the nervous system. It does not in the least affect the cardiac action, even when heart disease is present. It has no bad taste, and is easily soluble in hot tea or milk. The patient awakes without any disagreeable sensations about the head. The sleep-producing dose is smaller in comparison with other drugs of the kind. On the whole trional should be preferred to all ordinary hypnotic remedies.

### **12. Trional in insanity.**

**Collatz** (*Berl. klin. Woch.*, Oct. 2, 1893) has used trional in sixty-six cases of insanity. In uncomplicated insomnia 15 grains usually gave six to nine hours' sleep, within an hour. In some cases of epilepsy it had no effect on the fits, but shortened the post-epileptic delirium. In general paralysis of the insane it was uncertain, and was best given in 15-grain doses two or three times daily; it was useful in morphinomania. When given for the first time 30 grains had almost a certain effect, but afterwards 15 grains were sufficient. The author mentions the case of an epileptic who took 120 grains with suicidal intent. In fifteen minutes he had a fit. When he became conscious he complained of nausea, but did not vomit. He then slept for twelve hours. There was retention of urine, but no albumen, sugar, or blood-pigment in the urine, though ferric chloride gave a red coloration. He had a slight unsteadiness of gait for a time, but finally recovered.

**Beyer** (*Arch. f. Psych.*, Bd. xxv., H. 2) used trional in the psychiatric clinic in Strassburg. He says that, if not hindered by pain or external circumstances, a suitable dose almost invariably



produces drowsiness, quickly followed by dreamless, refreshing sleep, with no unpleasant after-effects; but slight cumulative action may be noticed, and the dose may often be reduced without impairing the hypnotic effect. No habit is formed, and there are no unpleasant effects from its abrupt discontinuance. As regards dose, men require 7 to 15 grains more than women. In simple insomnia or neurasthenia the dose at first should be 15 or 22 grains for a man and 15 grains for a woman; subsequently it should be reduced to 7 grains. A smaller dose combined with opium is most useful in simple melancholia. In hallucinatory forms of melancholia, acute or chronic, Beyer has seen very favourable results from 15- to 30-grain doses. In mania the dose required may be 45 grains for men and 30 grains for women. Such symptoms as drowsiness after waking, ataxia, or vertigo indicate that the dose has been too large.

**Deuschle** (*Columb. Med. Journal*, March, 1894) has tried trional extensively in his wards and found that it operates more satisfactorily and has fewer objectionable features than any other hypnotic. He mentions various cases of insomnia in mental disease, etc., in which he has given it with success in 15- to 20-grain doses. 25- to 30-grain doses sometimes produce drowsiness the following morning; so also on one occasion did 20 grains. The administration of trional three times daily in 15-grain doses was followed by good results in cases of mania and maniacal excitement, in some of which other sedatives had not given such good results. He has not noticed any impairment of digestion, or disturbances of respiration or circulation after trional. Its greater solubility probably accounts for its action being more rapid than that of sulphonal; its effect was produced in ten to thirty minutes. It is almost tasteless, and is best given in a little whisky or wine with sufficient hot water to effect solution.

### **13. Hæmatoporphyrinuria after trional.**

**Schultze** (*Deut. med. Woch.*, Feb. 15, 1894), after referring to cases of hæmatoporphyrinuria after sulphonal, says that from time to time unpleasant symptoms have appeared after the administration of trional, such as fatigue on waking, slight digestive troubles, rarely ataxia or stupor with marked cyanosis and vomiting. Koppers has warned against its use in cardiac disease. Schultze relates a case in which trional was given in a single evening dose of 7 to 22 grains for four or five weeks, 1½ ounce being given in all, when the patient (a woman) became worse, and had constipation, and the urine was dark red, almost black, from the presence of hæmatoporphyrin. All the reported cases of hæmatoporphyrinuria after sulphonal have occurred in women.

#### 14. General hypnotics in mental diseases.

**Hans Evensen** (*Norsk. Mag. for Lægevidenskaben*, No. 5, May, 1894) has tried various hypnotics in the insane. With **sulphonal**, experiments on thirty-one men and forty-five women showed that this was sure in its action, but its prolonged use was apt to cause serious disturbances in the general condition, apathy, and motor disorders. It is useful in acute excitement and alcoholism, and may be combined with opium if necessary. Its special advantage is the persistence of the sedative effect produced by its systematic employment. It should be alternated with some other hypnotic, such as chloral-amide. **Trional** and **tetronal** in doses of 15 grains acted in much the same way as sulphonal.

**Amylene hydrate**, in doses of 30 to 45 grains, is a mild though somewhat uncertain hypnotic, but it is especially useful in cerebral anæmia. **Paraldehyde**, in doses of 30 to 120 grains (by weight), is harmless when used only for a short time, but may cause prostration and nervous disorders if long continued.

**Chloral-amide** was used in twenty-six women and nineteen men, 30-grain doses being given. It acts less powerfully on the circulation than chloral, but does not so frequently cause headache, vertigo, and vomiting. Though not very certain in its action, it may be given to quiet patients. No ill effects were observed from it in general paralysis of the insane; it acts well in senile dementia, but is useless if there is much excitement.

**Somnal** (dose 30 to 90 grains) is very uncertain. It may be employed in chronic mania and in quiet melancholics, but is useless in acute mania.

**Hyoscine** was tried in forty-four women and thirty-two men, and acted rapidly and well. It is indicated when it is absolutely necessary to make the patient sleep for part of the night; it can be employed in excitement of all kinds. Injected subcutaneously, preferably between the shoulders if a patient is violent, it will in half an hour induce sleep lasting five hours. In a strength of 3 per cent. it has no effect; in a strength of 20 per cent. it gives repose but not sleep. It acts rather better in women than in men, and better when given at night than in the morning. It may be combined with sulphonal. It has no influence on the evolution of the disease, and has no effect when given by the mouth. The effect being very powerful, the patient must always be carefully watched, but as long as the dose does not exceed  $\frac{1}{60}$  grain there is no danger.

**Duboisin** resembles hyoscine in its action, but is somewhat milder, and, as a rule, is sufficiently sedative in its action; sometimes, however, it causes hallucinations of sight. The dose is  $\frac{1}{60}$  grain.

## II.—THE TREATMENT OF PAIN, INCLUDING HEADACHE AND SCIATICA.

### 1. Analgene.

**Bracco** (*Riforma Medica*, Aug. 19, 1893) says there are two bodies which go by this name—acetyl analgene and benzoyl analgene. The latter only is here referred to. He says that it may be completely successful in combating the pains of rheumatism, and also those of neuralgia or hemicrania. It has a marked effect on metabolism, as shown by the great increase of acidity, density, urea, chlorides, sulphates, and phosphates in the urine after its use. The urine is highly coloured with urobilin even after small doses. The drug has a destructive action on the red blood cells, and for that reason must be used only for a short time, and only after less dangerous remedies have failed. It has, however, no unpleasant effects in small doses.

### 2. Ergot in Migraine.

**Thomson** (*Journ. of Nerv. and Ment. Dis.*, New York, Feb., 1894) recommends large doses of ergot in migraine. He gives one drachm of the fluid extract with an equal quantity of elixir of cinchona in water as soon as the premonitory symptoms of the headache are noticed. The patient is at the same time advised to lie down and remain quiet. The dose is repeated in an hour if necessary, and again an hour later. If the drug is vomited, give a similar quantity by the rectum.

### 3. Lactophenin.

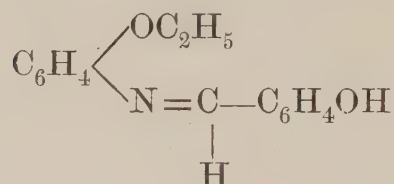
**Landowsky** (*Sem. Méd.*, Feb. 7, 1894) has tried the effects of lactophenin, which is very closely allied to phenacetin, in several cases. It has antineuralgic properties analogous to those of antipyrin, and has a genuine hypnotic effect. The amount given daily was from 8 to 45 grains divided into several doses. The only disagreeable effects caused by the drug seemed to be diaphoresis and slight giddiness in a few of the patients.

### 4. Malakin.

**Jaquet** (*Corresp. Blatt. f. Schweiz. Aertze*, No. 18, 1893) mentions this new substance, for which antipyretic, antirheumatic and antineuralgic properties are claimed. It is allied to



phenacetin, and is a salicyl derivative of paraphenetidin. Its formula is :—



It occurs in the form of small light-yellow needles, is insoluble in water, slightly soluble in cold and moderately soluble in hot alcohol; mineral acids decompose it. The usual single dose was 15 grains, the daily amount varying from 1 to 1½ drachm. It is best given in wafers; it may cause eructations of an unpleasant odour. It has no harmful effect on the circulatory system; it may be given for a long time in cases of neuralgia and headache, without injury.

### 5. Migranine.

**Overlach** (*Deutsch. med. Woch.*, No. 47, 1893) describes the properties of a combination of antipyrin with caffeine and citric acid. He considers it a chemical combination of the three substances, and after five years' experience of its action in cases of migraine and other forms of headache, he has come to regard it as an almost infallible cure, even after the headache has fully developed, and it is seldom that more than one dose is required. The dose is 16 grains, to be taken dissolved in water. This quantity contains only 1½ grain of caffeine, or one-sixth of the maximal dose of that substance. It is recommended that the patient should rest after taking the drug, especially in cases of severe migraine.

### 6. Neurodin.

**Von Mering** (*Therap. Monatsh.*, No. 12, 1893) speaks well of neurodin, which, like thermodin, is a derivative of γ-oxyphenyl-methane. It has antineuralgic properties in a high degree when given in 15-grain doses. The action commences within half an hour after it has been taken. It has been used in the most varied cases in which pain is prominent, such as migraine, headache, rheumatism, neuralgia, sciatica, tabes dorsalis, etc. From an experience of two years von Mering can recommend it, in doses of 15 to 22 grains, in headache and other neuralgias. Its use has not been accompanied by any disadvantage. In efficiency it compares favourably with other remedies for neuralgia; sometimes neurodin is more active than phenacetin, and *vice versa*: it may be advisable, therefore, to alternate neurodin and

phenacetin in order to find out the individual peculiarities of the patient.

### **7. Sodium phosphate in trigeminal neuralgia.**

Glorieux (*Med. News*, July 15, 1893, p. 74) has tried this drug with success in severe cases of trigeminal neuralgia; ten cases were so treated, with relief in eight. A solution of 30 grains of sodium phosphate in 3 ounces of distilled cherry laurel water was prepared, and of this 15 to 45 minims were injected daily.

### **8. Potassium bromide and sodium salicylate in headache.**

Brunton (*Practitioner*, Feb., 1894), in this paper, first alludes to the fact that absorption from the stomach frequently ceases entirely during an attack of headache, and drugs given by the mouth have then no effect. In such cases morphia only is of use, but may set up a morphia habit. He estimates that 80 or 90 per cent. of all headaches are due to defective vision (uncorrected hypermetropia, myopia, astigmatism, inequality of the focal distance of the two eyes, and imperfect convergent power); 10 per cent. to decayed teeth; and about 5 per cent. to disorders of the nose, throat, ears, scalp, and other causes. Headache due to visual defects is generally frontal, temporal or occipital; in those cases associated with unequal visual power of the two eyes, it frequently affects the side of the weaker one. A very common form of headache begins with unusual irritability at night, which, however, is not always present. The patient wakes at about five o'clock in the morning, is disinclined to move, and goes to sleep again; he again wakes at seven or eight o'clock, with a distinct but not severe headache, which increases during the day, is very severe in the evening, and is relieved by vomiting. If, however, he gets up on first waking, the headache generally does not appear. These headaches may frequently be prevented by taking potassium bromide 30 to 35 grains, with sodium salicylate 10 to 15 grains in a tumblerful of water, either the evening before when the irritability is present or on first waking in the early morning; the medicine may be repeated once or twice if necessary.

### **9. The treatment of sciatica.**

Weir Mitchell (*Practitioner*, p. 353, vol. ii., 1893) says that in any obstinate sciatica where he can exclude spinal disease, constitutional states, tumours, etc., he puts the patient in bed. Then he gives cod-liver oil, iron if necessary, full diet, and milk between meals. A long flannel bandage is put on at once, rather tightly, from the foot to the groin, and renewed twice a day. At the side of the limb a long splint is secured by a few turns of bandage. The splint should reach from the axilla to the ankle,

the knee being bent a little and the heel protected from pressure. This treatment by bandage and splint is continued day and night for four weeks ; once a day, when these are removed, the leg is slowly and very moderately flexed and extended. If the treatment fails, it is usually because the malady is, or has become, spinal in origin. The *rationale* of this method is clear. The flannel bandage lessens the blood in the leg ; it protects the whole skin-surface from the excitation of contacts ; the enforced immobility makes all motion impossible, and so the two uses of the nerve cease. At the close of the treatment, massage used with extreme care may hasten the recovery. If there are persistent painful points, they may be removed in the end with the actual cautery.

#### **10. Ill effects of antipyrin, antifebrin, and phenacetin.**

The Therapeutic Committee of the British Medical Association have again reported (*Brit. Med. Journal*, Jan. 13, 1894, p. 85) on the possible ill effects of antipyrin, antifebrin, and phenacetin. As regards **antipyrin**, they report that out of a large number of observations only 28 per cent. of the observers have met with any ill effects worthy of notice ; that even when any ill effects are recorded they have occurred as isolated instances out of many hundreds of cases ; that in the large majority of these instances the dosage has been injudiciously high or too long-continued ; that, in short, there has been in most cases a very direct relation between the dosage and the occurrence of ill effects. They conclude that, as far as the reports go, the ill effects are not of the frequency or importance ascribed to them by a widespread impression. The large majority of observers agree in stating that they are of no importance whatever, and that with reasonable and judicious care they limit in no way the general usefulness of the drug as a therapeutic agent.

With regard to **antifebrin**, the report states that, notwithstanding the experience of many apparently to the contrary, the conclusion must be permitted that to give antifebrin in doses of 5, 6, 8, and even 10 grains, still more to repeat these after a short interval, is a highly injudicious procedure. Such doses are altogether excessive ; they are equivalent to about 25, 30, 40, and 50 grains of antipyrin. The repute of antifebrin has probably suffered in the past from the circumstance that this fact of its greater strength has been overlooked. Indeed, the dosage employed has been so large as to lead one to surmise that in the minds of many observers antifebrin is regarded as a drug of the same strength as antipyrin.

Out of eighty observers who have used **phenacetin**, only



seven have noticed any ill effects, and of these in only three were the ill effects very marked, and were of the same character as those noted in connection with antipyrin and antifebrin—namely, cyanosis and collapse—and were in each case due to too large a dose or to the dose being too often repeated.

The general conclusion of the Committee is that, as regards their freedom from ill effect, these reports show that the drugs may be placed in this order—(1) phenacetin, (2) antipyrin, (3) antifebrin.

**Paterson** (*Practitioner*, 1893, vol. li., p. 241) gives the results of his inquiries into the ill-effects caused by these drugs, as gathered from the experience of twenty-five busy practitioners.

As regards **antipyrin**, he says that, kept within the limits of 10 to 20 grains, repeated for one or two days, there was practically a freedom from ill effects. Large doses, however, depress the nervous system in degrees varying from an unpleasant diaphoresis to severe collapse. Affections of the skin and psychical disturbances are more rare. Depression has usually been noticed when the drug has been given to reduce fever. Some complain that after taking it for nervous headache they feel more depressed after recovery than if they had not taken it. Continued doses may lead to loss of energy and slight mental depression, and in other cases blurring of the vision and blueness of the lips have been seen. Paterson concludes by saying that these ill effects are so rare that they do not affect the usefulness of the drug.

The dose of **acetanilide** (antifebrin) generally given varies from 5 to 10 grains. Symptoms of collapse and depression are more readily produced and more marked than after antipyrin. In pneumonia the depression of the heart renders it unsafe. Anæmia may be induced.

**Phenacetin** is usually given in doses of 5 to 10 grains, and it has been found depressant only when very large doses have been given, and it is more free from ill effects than either of the two preceding drugs. **Eisenhart** (*Therap. Monatsh.*, No. 5, 1893) relates a case of a patient who took three powders, each containing 15 grains of phenacetin, within three and a half hours. Half an hour after the last, palpitation and oppression of breathing came on, with dulness of hearing, nausea, and vomiting, after which the patient was relieved.

### III.—THE TREATMENT OF EPILEPSY.

#### 1. Antifebrin.

**Inglis** (*Therap. Gaz.*, Aug., 1893) thinks that the routine treatment of epilepsy by bromides does harm. He believes that

they should be given in large doses to begin with, and if good effects result the dose should be diminished, and when toxic effects appear the drug should be stopped, as failure of memory, mental stupor, and change of character are worse than an occasional nerve-storm. He has found that antifebrin and its analogues form efficient substitutes for the bromides, the only drawback being that in some persons, even in moderate doses, these drugs have a depressant effect on the circulation.

## **2. Monobromide of camphor.**

**Bourneville** (*Progrès Méd.*, 1893, 18, p. 339) has used this remedy for twenty years in the treatment of epilepsy when vertigo is a frequent combination. Five cases are reported showing the results of administration. The daily dosage is from three to seven capsules, each containing 3 grains of the remedy. Each week the daily dose is increased by one capsule until the maximum is reached, when the treatment is omitted for a week, to be resumed in the form of a daily dose of three capsules.

## **3. Opium and large doses of bromides.**

**Flechzig** (*Neurolog. Centralbl.*, Nov. 7, 1893) has found the following treatment of epilepsy efficacious. He gives small but increasing doses of opium for about six weeks, then discontinues the opium and substitutes large doses of bromide (about 120 grains daily). After continuing these for two or three months, the dose is gradually brought down to 30 grains daily. The result usually obtained was a cessation of the fits as soon as the bromide was commenced. The observations were, however, in but a few cases, and did not cover a sufficiently long period.

**Stein** (*Neurolog. Centralbl.*, Oct. 1, 1893) has used the same method in several cases, of which he refers to six. In three of these patients the fits stopped shortly after beginning the course of bromide; the patients then passed from under observation. Two of the remaining patients had no fit from the time that the bromide was substituted for the opium until the day of report (a period of ten weeks), their general health improved, and their body-weight increased. The last case was a boy in whom the fits were arrested for only a few weeks. Prior to the opium treatment this patient had been intolerant of bromide, but after it he could take 75 grains daily. In general Stein thinks favourably of the method, and recommends it specially for children.

## **4. Testicular juice.**

**Bourneville** and **Cornet** (*Progrès Méd.*, Dec. 9 and 16, 1893) report the results of trying testicular fluid in thirty cases of epilepsy. The cases were divided into three classes. The first

class was composed of ten children, who were treated for forty days with a 20 to 40 per cent. solution of the juice. In nearly every case the number of attacks had increased, and no favourable influence could be detected. In the second class, comprising ten children, Brown-Séquard's method was used for sixty-five days, the fluid used being prepared under the direction of D'Arsonval. The attacks increased in six cases, were the same in two, and less in two, but there was no mental or physical improvement. The third class was comprised of children who were treated for two months with fluid prepared from a ram instead of from a bull; in four of these there was a slight improvement. In conclusion the authors state that only twenty-eight cases were treated for a sufficient length of time to judge of the results of the treatment. In eight cases only was there noticed a slight diminution in the number of attacks, while in twenty cases there was a decided increase; there was never any improvement in the mental state. An increase of weight was noticed in six of the second class, a decrease in three, and no change in one. Féré also gave the method a thorough trial, and entirely disapproves of it.

#### IV.—THE TREATMENT OF CHOREA.

Dujardin-Beaumetz (*Bull. Gén. de Thérap.*, March 15, 1894), in a summary of the treatment of chorea, first distinguishes between chronic chorea (which is incurable) and acute chorea. Although many of the latter cases are rheumatic, yet he thinks that at the present time the greater proportion are of nervous or hysterical origin. In rheumatic chorea salicylate of soda often fails; antipyrin in 15-grain doses four times a day is the best remedy. He has tried exalgine in doses of 45 grains daily, but without success, though Dana and Lowenthal, giving larger quantities (60 to 100 grains daily), have reported it useful. Cure by antipyrin takes fifteen to twenty days to accomplish. If hypnotics are necessary, chloral is the best, the more so as it is well borne in large doses by children—as much as 45 to 60 grains daily may be given to an infant. If no cardiac disease is present the cold douche may be employed, or ether spray along the spinal column. In convalescence massage and gymnastic exercises are useful.

In hysterical chorea, which chiefly attacks girls between twelve and fifteen years of age, potassium bromide in doses of 30 to 60 grains daily should be given, and arsenic at the same time. Hydrotherapeutic treatment should be employed. Cold applications to the vertebral column followed by a warm douche



upon the lower extremities is a good form. If there be much nervous excitement, the douche should be tepid. In very severe cases the cold wet sheet should be used for ten to fifteen seconds, after which the patient should be surrounded by hot coverings; or ether spray along the spine may be used. In that form of chorea in which muscular weakness is the most marked feature the bromide is not advisable, the cold wet sheet being the best means of treatment. As chorea tends to get well of itself, it is not wise to interfere too actively with it.

**Eskridge** (*Philad. Med. News*, Sept. 30, 1893) recommends the following plan in all but the mildest cases of chorea. Absolute rest in bed is to be insisted on, and antipyrin (dose, as many grains as the child is years old) to be given three times a day after food, the dose to be increased a grain each day until all violent movements stop. He then begins with 1 minim of Fowler's solution well diluted, three times daily after food, and increases the dose 1 minim each day. About the second or third day after the arsenical treatment is commenced he lessens the antipyrin, giving only a single dose between eight and nine o'clock in the evening. After all but the most occasional twitching has disappeared, he omits the antipyrin and gives syrup of iodide of iron with the arsenic. Tolerance of the latter is generally reached when the dose is 6 or 7 minims; he then discontinues its use until all unpleasant effects have passed away, resuming it at the dose previously attained, and continues to increase the dose as before, the second limit of tolerance being generally reached when the dose is from 10 to 12 minims. The drug is again discontinued, and as the movements will by this time probably be very much lessened no further increase will be needed when it is resumed. It should be given at the last-named dose for some ten days, then omitted for a few days, and then gradually reduced by 1 minim daily, a pause of a few days being again made when a 5-minim dose has been reached. The treatment of the mildest cases only differs in that arsenic should be commenced at once, antipyrin being given only at night-time. Much rise of temperature is a contra-indication to the use of antipyrin, and so also is cardiac dilatation; in the former case chloral may be substituted, and in the latter phenacetin with cannabis indica

## V.—THE TREATMENT OF LOCOMOTOR ATAXIA.

### 1. Mercurial inunctions.

**Dinkler** (*Berl. klin. Woch.*, Nos. 15 to 20, 1893) reports the results of treatment of seventy-one cases of tabes, in all of which

there was a previous history of syphilis, by mercurial inunctions. In fifty-eight cases improvement followed; in eleven no definite change was noted; death occurred in two cases, in one from cerebral hæmorrhage due to syphilitic arteritis, and in the other symptoms of brain tumour (gumma?) appeared. Dinkler thinks we are justified in concluding that mercury has no injurious influence in cases of tabes. In the cases that improved, an increase of body-weight was noticed. Of the sensory disturbances the crises were least favourably influenced. The peculiar motor disturbances were most materially improved. As regards the ocular affections, the paralysis of the external muscles of the eyeball, and to a less extent those of the internal muscles, were most favourably influenced; also the tabetic optic atrophy was in many cases improved by the mercurial treatment.

## 2. Iodides.

Weiss (*Centralbl. f. d. ges. Therap.*, Feb., 1894) refers to a case of tabes which, as reported in the *Neurolog. Centralbl.*, Dec., 1893, was treated with large doses of potassium iodide. He then mentions a case treated by himself with sodium iodide. The patient had ten years previously been treated for primary and secondary syphilis, the first symptoms of ataxia appearing three years subsequently. All the usual symptoms were present when the treatment was commenced. Seventy-five grains of the salt were given daily for two weeks, and no unpleasant effects being produced the daily quantity was increased first by 30 and then by 45 grains. In three or four weeks the gastric crises, which until then had been of daily occurrence during the preceding years, suddenly ceased and did not return. During the following month the disturbances of co-ordination diminished, and disappeared altogether a few weeks later, at which time the patient was taking 2 drachms of sodium iodide daily, the total consumption having been 16 ounces. Similarly the other symptoms disappeared, while the appetite and the body-weight increased. The urethral crises and weakness of sphincters persisted longest, and had to be treated by galvanism. At no time were any unpleasant symptoms produced.

## 3. Testicular fluid.

Routh (*Brit. Med. Journ.*, Dec. 30, 1893, p. 1425) tried the effect of spermatic fluid injections in a case of tabes dorsalis. On admission the pulse was 80 and the temperature 98·6° F.; after the first injection the pulse dropped to 52 and the temperature to 97° F., and after the second injection to 36 and 95° F. respectively. After four weeks' treatment the patient

expressed himself as in no way better, neither was any improvement at all manifest, the patient seeming to be getting weaker.

#### 4. Treatment of tabetic lightning pains.

Grasset (*Journ. de Méd. de Paris*, p. 501, No. 48, 1893) treats the painful lightning crises of tabes by giving a cachet containing  $7\frac{1}{2}$  grains of phenacetin every half-hour until eight have been given, provided the stomach tolerates it. If the stomach be intolerant he administers antipyrin hypodermically, or morphine hydrochlorate with atropine.

### VI.—SYPHILIS AS A CAUSE OF NERVOUS DISEASES.

#### 1. Syphilitic spinal paralysis.

Kowalewski (*Neurol. Centralbl.*, June 15, 1893), in speaking of syphilitic transverse myelitis, as named by Charcot, says the disease is almost confined to males between thirty and forty years of age; its development is slow, and disturbances of the bladder are among the early indications. Frequently, in addition to symptoms resembling spastic paraplegia, there are sensory disturbances of various kinds, sometimes with trophic derangements. Spasticity of gait is, however, not always observed, and is never so marked as in lateral sclerosis; muscular rigidity and increase of the deep reflexes also are less pronounced than in spastic paraplegia. In 152 cases of syphilis of the central nervous system treated by the author since 1892 there were thirty-eight affected with tabes dorsalis and twenty-one with syphilitic spinal paralysis. In all the latter there was derangement of the bladder, mostly shown by inability to restrain detrusor action whenever the desire of micturating arose; the rectal function was similarly deranged in many of the cases. Increased myotatic rigidity was a constant condition; great exaggeration of the "thermic" reflex in the lower limbs was found to be a characteristic peculiarity of the disease; cold or heat applied to the lower extremities evoked convulsive contraction. The psycho-physical reaction time for tactile and painful stimuli was normal or slightly shortened—an opposite condition to that obtaining in tabes.

Oppenheim (*Berl. klin. Woch.*, Aug. 28, 1893) says in these cases the gait is "stiff-legged," although there is little muscular rigidity, the tendon reflexes are increased, but the motor loss is not very great; there is almost constant weakness of the bladder, diminished sexual power, and slightly marked sensory troubles. The condition develops in the course of months or years, or sometimes more rapidly. Improvement may occur after



inunction, and the patients mostly do not become paraplegic. The chief form consists in a meningo-myelitis starting in the membranes, although Erb thinks that the cases described by him have nothing to do with meningitis. The author says the meningeal affection and the syphilitic changes in the cord, so far as they are syphilitic, may clear up, and only the myelitis and the secondary degenerations remain. Oppenheim does not regard the prognosis as very favourable.

**Gerhardt** (*Berl. klin. Woch.*, 1893, No. 50) says that syphilitic disease of the spinal cord may follow in from three months to twenty years after primary syphilis. He advocates thorough and continued antisyphilitic treatment as soon as the diagnosis is made. In syphilis of the spinal cord the meninges and vessels are chiefly affected. Amongst the clinical varieties a certain irregularity in the symptoms, with paraplegic symptoms, which are predominant on one side, tending to the form of paralysis described by Brown-Séquard, should direct attention to syphilis; and cerebral symptoms are frequently associated with the spinal symptoms. Vascular disease associated with disease of the meninges may show itself by sudden exacerbation of the spinal symptoms, with sudden onset of complete paraplegia. Speaking of other clinical forms, Gerhardt says that various symptoms, such as partial anæsthesia of the trunk, paralysis of rarely-affected trunk muscles, and herpes zoster, when associated with other symptoms may be attributed to nerve-trunks being affected. If there is syphilitic disease of the spinal column, it is generally in the cervical region.

As regards tabes dorsalis, Gerhardt says that in the last eight years he has had 102 cases, and that in 50 per cent. a history of syphilis could be obtained. A few cases of tabes, he thinks, are really benefited by antisyphilitic treatment, and this is more likely to occur if the patient is well nourished, if comparatively little time has elapsed since the primary syphilis, if the patient still shows signs of undoubted syphilis, and especially in the so-called "atypical" cases of tabes. Of the latter class, however, he allows that some may be termed cases of "pseudo-tabes," and be due to a true syphilitic lesion in the posterior columns of the spinal cord.

## **2. Syphilis of the spinal cord, with symptoms like those of tabes dorsalis.**

**Ewald** (*Berl. klin. Woch.*, No. 12, 1893) relates a case with symptoms like tabes, namely, absent knee-jerks, inability to stand with the feet together and the eyes closed, ataxic gait, partial anæsthesia, loss of sensation of temperature and pressure,

inequality of the pupils, and loss of light reflex. At the *post mortem* examination no changes corresponding to those typical of tabes were found, but a chronic fibrous and gummatous spinal arachnitis and diffuse chronic interstitial myelitis, combined with endoarteritis and phlebitis. These changes were found chiefly in the posterior columns. The process was not a sclerosis, but a marked interstitial proliferation, which proceeded from the periphery, and only affected the nerve fibres secondarily and in limited spots.

### **3. Syphilis as a cause of tabes dorsalis.**

**Sachs** (*New York Med. Journ.*, Jan. 6, 1894) brings forward the following statements in favour of the close relation between syphilis and tabes: 1. The development of general paralysis of the insane after tabes, and tabetic symptoms in the course of general paralysis, are very common, especially in syphilitic subjects; 2. Cases of tabes and general paralysis in women and in very young subjects are invariably preceded by syphilis, either acquired or hereditary; 3. In cases of undoubted cerebro-spinal syphilis, symptoms occur which may resemble general paralysis or tabes; 4. Mercury and potassium iodide improve the condition in early tabes. With regard to the pathological side, Sachs points out that cases have only shown symptoms of tabes during life, but after death only a syphilitic leptomeningitis invading the posterior horns and columns has been found.

### **4. Syphilis as a cause of general paralysis of the Insane.**

**Peterson** (*Med. Rec.*, Dec. 9, 1893) gives a list of twenty-two writers, with the percentage frequency of syphilis found by them in general paralysis of the insane; the numbers therein range from 17 per cent. (Kaes) to 70 per cent. (Savage), 76 (Mendel), and 80 per cent. (Bannister). The author's own investigations in forty recent cases of general paralysis show that ten of the patients were definitely syphilitic, twelve were non-syphilitic, and in the remaining eighteen the point was not determined. From an examination of all the data, Peterson concludes that a history of syphilis is found in about 65 per cent. of general paralytics; he further notes that antecedent syphilis is about eight times more frequent in general paralysis than in other forms of insanity. As to the aetiological relationship between the two diseases, Peterson considers that syphilis does not act as a direct cause in the production of general paralysis, but by its pernicious constitutional effects it renders the nervous system more vulnerable to the operation of alcoholic and other excesses. Amongst the native Egyptians syphilis is very wide-spread, but

general paralysis is unknown, and Peterson thinks this is due to the prevailing abstinence from alcohol.

## VII.—THE TREATMENT OF TETANUS WITH ANTITOXIN.

**Gattai** (*Centralbl. für Bakt.*, Aug. 1, 1893) relates a case in which tetanus supervened five days after an injury of the thumb, with well-marked symptoms of opisthotonos on the eighth day. Caustic was applied to the wound, and also strong sublimate injections; 60 grains of chloral given by the rectum gave several hours' sleep, but the symptoms returned. On the ninth day, 10 c.c. of the serum of a rabbit rendered in a high degree immune to tetanus were injected. On the same day, two doses of antitoxin prepared from the dog (each of 50 cgr.) were injected subcutaneously. On the tenth day, three more doses of the same strength were given. On the eleventh day, two doses, each of 65 cgr.; on this day the symptoms began to abate. On the twelfth day, 50 cgr. of antitoxin and two doses of rabbit's serum, each of 6 c.c., were injected, and on the thirteenth day three small doses of serum were given. On the sixteenth day, all symptoms of tetanus disappeared.

**Lesi** (*Riforma Medica*, Aug. 18, 1893) mentions a case of tetanus which came on six days after a wound of the foot contaminated with stable refuse. Two days after the appearance of the symptoms the patient received an injection of 50 c.c. of serum obtained from one of Tizzoni's immunised horses; the same night 20 c.c. more were given; 10 c.c. the next day, and 20 c.c. on the fourth day. There was arrest of the external spasms immediately after the first injection, and complete recovery in five days.

**Remesoff** and **Fedoroff** (*Centralbl. für Bakt.*, Jan. 23, 1894) report a case of traumatic tetanus cured by serum. The patient had well-marked symptoms of the disease when he was injected with 50 c.c. of the serum of a dog which had been rendered immune to tetanus. The curative value of the serum was estimated at 1:300,000. There was much improvement the following day, and during the next three days injections of the same amount were given. The condition steadily improved, and recovery occurred on the fourteenth day. The authors arrange in the four following groups all the recorded cases of treatment of tetanus by immunised serum:—(a) Cases in which the symptoms commenced to abate immediately after injection, and then steadily disappeared; (b) those which remained *in statu quo* for a



short time after injection and then gradually improved ; (c) those in which no further muscles became involved in spasm after the commencement of the treatment, though occasionally an aggravation of certain other symptoms (such as trismus or difficulty in swallowing) occurred ; (d) those ending fatally, notwithstanding treatment. A survey of the cases treated by this method brings out the following notable facts :—The duration of the disorder is decidedly diminished by the treatment ; the temperature is reduced ; sleep is restored ; the attacks of spasm grow weaker and rarer ; the pulse-frequency is diminished ; and, lastly, there is great improvement in the general condition.

**Giusti and Bonaiuti** (*Gazz. degli Ospit.*, May 12, 1894) report a case in which the ordinary remedies failed, and Tizzoni injected immunised serum of the horse 60 c.c., of the dog 110 c.c., and of dried alcoholic precipitate of immunised horse serum 2 gr. (equal to about 20 c.c. of serum). After each injection the patient was relieved, and finally recovered.

## VIII.—ELECTRICITY IN NERVOUS DISEASES.

### 1. The electrical treatment of infantile paralysis.

**Lewis Jones** (*Brit. Med. Journal*, Mar. 10, 1894, p. 525) says that it is important, in every case of infantile paralysis which has lasted for four weeks, to try electrical treatment, continuing it for six months or a year. It is the exception for a muscle to be so completely destroyed by poliomyelitis as to have no functional fibres left. Great development of the remaining fibres may be gained by persevering stimulation of them. Where the electrical reactions are reduced to the very lowest flicker, or even entirely abolished, some improvement may still be hoped for. Where the electrical reactions are not altered in quality, it is not good practice to leave the case to take care of itself. Electricity acts only as a stimulant, but it is superior as such to any mechanical treatment by rubbing or massage, though it may advantageously be combined with these. The form of electrical stimulation to be employed is of less importance than persistence in its employment. The induction coil, with or without the bath, is easily arranged for use by the mother or nurse.

### 2. Galvanisation of the brain.

**Hare** (*Therap. Gaz.*, Dec., 1893) says that it has been claimed that great improvement can be produced in the paralysis characteristic of the post-apoplectic state by the application of a galvanic current from the occiput to the forehead, the idea being that in this way the current passed from pole to pole through the brain

substance and favourably modified nutrition. Hare is directly opposed to this view, and while he does not deny that improvement is often seen after galvanism, he affirms that this is an indirect effect. By means of experiments he says that such a current does not pass through the brain substance at all, but only through the scalp. He found that the resistance was less when two electrodes were placed as above than if one was placed on the surface and the other in the brain substance.

### **3. Influence of electricity on the nutrition of muscle.**

Debedat (*Arch. d'Électricité Méd.*, Feb. and Mar., 1894) has made experiments on rabbits, and the following methods were tried :—(1) Induction-coil current given in shocks lasting one second, and followed by one second interval ; (2) galvanic current of 2 milliamperes given in the same way ; (3) static sparks of 2 to 3 milliamperes repeated every two seconds ; (4) tetanising of muscles for four minutes by induction coil without intervals of repose ; (5) steady galvanic current given in the same way. The experiments were continued for twenty-four days, for four minutes a day. The results showed a gain of 40 per cent. in weight on the stimulated side with method (1), and 18 per cent. with method (2). The effect of (3) was *nil* ; (4) caused a loss of weight, and (5) a slight increase. The gain in weight was due to a true growth of the muscle ; the loss was accompanied by histological evidence of damage to the muscle fibres. The author concludes that the most advantageous mode of promoting growth of muscle by electricity is to use an induction coil, and to arrange the periods of contractions and repose of the muscle so as to approximate to the conditions of a muscle during the performance of rhythmic gymnastic movements—namely, about thirty periods of contraction and thirty of rest per minute, prolonged tetanisation being distinctly harmful.

### **4. Effect of static electricity on metabolism.**

Truchot (*Arch. d'Électricité Méd.*, Feb., 1894) made some experiments on himself with the statical charge of a Wimshurst machine, of a potential estimated at 80,000 volts, for fifteen minutes daily. The results observed were an increase in the frequency of the pulse, a rise in the bodily temperature, and a diminution in muscular power ; the appetite increased at first, but soon fell off, and there was a feeling of languor and weakness. The same results followed a second course of the treatment. He concludes that the metabolism of the tissues in health is increased and unfavourably affected by statical electricity. On the other hand, in patients whose metabolic processes are imperfectly

performed, and especially in neurasthenic cases, this increased metabolic activity is useful and beneficial.

## IX.—THE INJECTION OF SALINE SOLUTIONS AND ORGANIC FLUIDS IN NERVOUS DISEASES.

### 1. Saline injections in neurasthenia.

**Mathieu** (*Gaz. d. Hôp.*, Sept. 7, 1893) thinks that treatment by saline injections owes much of its efficacy to suggestion, similarly to the effect of suspension in tabes, and to that of twenty or thirty medicines in phthisis. He objects strongly to the use of organic liquids, but has not the same objection to the use of saline injections, as they can be employed without danger if proper anti-septic precautions are taken and if the injections are made sufficiently deep. He thinks that there is no doubt that small transfusions of serum to the extent of 25 to 100 c.c. of liquid raise the tone. He has obtained almost miraculous results in neurasthenia with a liquid composed of 60 grains of sodium phosphate, 30 grains of sodium chloride, 300 grains (by weight) of neutral glycerine, and  $2\frac{1}{2}$  ounces of water, but he does not attribute any specificity to the liquid. Recently with half a drachm of the liquid he resuscitated a neurasthenic who was scarcely able to leave his bed; but Mathieu added a considerable amount of suggestion to the above formula, and believes more in this than in the phosphate of soda.

**Tonolli** (*Gazz. Med. Lombarda*, Sept. 16, 23, 1893) thinks the hypodermic injection of sodium phosphate is useful in many cases of nervous disease. He shows some reason to suppose that in thirteen cases in which injections of varying amounts of the salt were made improvement followed in six cases, a cure in five, while two were unaffected. The cures were four cases of neuralgia and one of neurasthenia. The improvement took place in one case of tabes with hysteria, in one of spastic rigidity and neurasthenia, and in three cases of hysteria. The negative results were in cases of hysteria.

### 2. Testicular fluid in nervous disease.

**Rusconi** (*Gazz. Med. Lombarda*, June 29, 1893) gives a short account of some cases treated by this method. The first case was a woman suffering from an affection supposed to be sclerosis of the posterior columns of the cord, with wasting mydriasis, diplopia, lightning pains, loss of knee-jerk, tremors on movement, occasional involuntary micturition, and loss of sensation in the soles of the feet, with contractures of the limbs. Improvement in the subjective symptoms was noted after the first injection, and after six



injections the pains were only slight, the contractures had nearly gone, and sleep and appetite had returned. After twelve injections all symptoms had practically disappeared, but slightly reappeared when treatment was discontinued, but again disappeared when treatment was resumed, and after thirty-two injections the patient was well. The second case was that of a woman with hysteria, in whom the injections were of no service, but improvement took place after injections of chloride of gold and soda. The third case, one of hysteria, improved slightly after four injections, but the improvement was quite irregular and not progressive; and although ninety-seven injections were given, no benefit resulted. In the fourth case, one of tabes, thirty injections were given, with no good result whatever. The last case was one of vesical paralysis, following typhoid fever with general weakness and neurasthenia, all of which symptoms disappeared after five injections.

### 3. Spermatic fluid in mental disease.

Alombert-Goget (*Thèse de Lyon*, 1892-1893, *Lyon Méd.*, Nov. 12, 1893) thinks that Brown-Séquard's fluid, when given in sufficient doses, seems to be of some service in ataxia and delirious epilepsy. Not only was the general nutrition improved, but the mental condition was favourably modified; the appearance of the patient was different, the eye being bright, the look livelier and more penetrating, and the whole countenance more expressive. In the epileptics, the attacks were modified in form, their number being at the same time slightly increased; in the ataxic patients, besides the disappearance of the lightning pains, delirium was subdued and temperature regulated.

**4. Testicular fluid in epilepsy.** See "Treatment of Epilepsy" (pp. 93-5).

**5. Testicular fluid in tabes.** See "Treatment of Tabes."

## X.—THE TREATMENT OF ALCOHOLISM.

### 1. The treatment of delirium tremens.

Twitchell (*Philad. Med. News*, vol. lxiii., No. 5, p. 113, 1893) says that delirium tremens often begins one to three days after the individual has ceased drinking; the single drinking bout does not produce it, and the chronic drinker may have delirium tremens without ever having been drunk. Usually there is an exciting cause, such as inclement weather, an accident, pneumonia, or other acute illness. There are three stages, the incipient, the violent, and the typhoid. In the first stage, or "the horrors," the patient appreciates the character of the disease which is approaching.

The second stage is sometimes ushered in with a violent epileptoid convulsion, hallucinations and tremor. The great excitement rarely lasts longer than three or four days, but the exhaustion leads to a typhoid state. After the violent stage is well developed, the prognosis is grave, and death may occur in two days, pneumonia and surgical cases usually die in this stage, as do also the febrile cases of Magnan. The typhoid condition may last six to eight weeks, and the majority of the cases die. In diagnosis, we must exclude acute alcoholic intoxication, psychoses, made prominent by drinking, alcoholic insanity, delirium of infectious fevers, and mania.

In his treatment, Twitchell says it is wise to begin with a purgative. He suggests that hot-air baths would be valuable in the typhoid stage. He recommends capsicum or some similar drug to overcome the nervousness that seems associated with the disturbed stomach. He states that at the city hospital good results were obtained from chloral hydrate in 30- to 60-grain doses, every half or three-quarters of an hour, until sleep was produced. Shackles are a necessary evil; in the later stage, it is bad practice to use them. Strychnine is the most valuable drug in the typhoid stage.

### **2. Large doses of alcohol in delirium tremens.**

Anders Hansson (*Hygeia*, No. 4, 1893) relates a case of delirium tremens following injury, in which morphia and chloral had no effect. Large doses of alcohol were then given, one litre of brandy in twenty-four hours. The patient became quiet and calm, the sleeplessness and tremors disappeared, and sleep followed. The quantity of brandy was gradually diminished, and on the twelfth day was discontinued. No narcotics were ever required, and the patient was quite well in six weeks.

### **3. Prognosis and treatment of chronic alcoholism.**

Barlow (*Med. Chronicle*, xvii., p. 215, 1893) thinks the three great features by means of which recovery takes place in chronic alcoholism are undoubtedly the withdrawal of the alcohol, the administration of food, and the natural tendency to elimination and repair. Shampooing and galvanism are helpful in the middle and late stages, harmful in the early stages. Sunlight and bracing air and change of surroundings are invaluable. When alcohol is withdrawn and food assimilated, there is a natural tendency towards recovery independent of all therapeutics. There is a tendency towards partial recovery if the alcohol be merely diminished in quantity, if there is an improvement in the assimilation of food. Barlow considers that for the sake of the heart itself we must withhold alcohol. In an

alcoholic dyspepsia, alcohol is often the only thing which will quieten the stomach, but this is a vicious circle, and it is better not to give it, as the vomiting gets rid of a quantity of thick mucus, and then food can be taken; treatment by alkalies and very hot water is much better. In time the alcoholic paralysis will spontaneously recover; a few sleepless nights are better than giving sedatives.

## XI.—MISCELLANEOUS.

### 1. The treatment of peripheral neuritis.

Leyden (*Berl. klin. Woch.*, No. 20, 1894) considers that in the case of neuritis following acute specific diseases, care during convalescence as to nourishment, rest in bed, and avoidance of every exhaustion contribute to prevent its occurrence. "Ætiological treatment" (removal of the cause) in neuritis due to alcohol or lead, and treatment of the primary malady, as in diabetes, are of the first importance. There is no specific remedy for multiple neuritis, and treatment by drugs does not play a very important part. Owing to the fact that rheumatism is not infrequently an element in the ætiology, sodium salicylate and other anti-rheumatic drugs have been used without producing any good results in the majority of cases. Potassium iodide was of use only now and then, and mercury was of doubtful value. Antipyrin, phenacetin, exalgin, euphorbia, and methylene blue were sometimes of use for the relief of pain, but it was often necessary to resort to morphine, chloral, sulphonal, etc. Strychnine, formerly much used, but lately fallen into the background, deserved to be tried; by increasing the excitability of the affected muscles it favoured the return of normal function and nutrition; it ought especially to be resorted to in progressive cases, in which the respiratory movements were threatened. Leyden prefers to use it as a subcutaneous injection,  $\frac{1}{70}$  to  $\frac{1}{20}$  grain twice daily.

Massage and baths were valuable auxiliaries which were indicated, especially the latter, in the late stages of the disease. General hygienic treatment was of much importance. Rest, as a rule in bed, was of the first importance in the early stage; in the later stage, feeding. Finally, in the latest stages of all, moral suasion rousing the patient's latent energies was often of great value. Passive movements and encouraging the patient to make active movements were generally attended with better results than massage in this stage. Electricity, formerly used too much, was now used too little, but its usefulness was greatly limited by



the fact that in many cases the pain caused was too great to permit the treatment to be continued.

## **2. Treatment of Raynaud's disease.**

Christian Simpson (*Edinb. Med. Journal*, p. 1030, 1893) says that in this condition the main drugs to depend on are vaso-constrictors and vaso-dilators, used as it may be desired to increase or to diminish the blood-supply in any given case or stage respectively. General tonics, hypodermic injections of arseniate of strychnine, electricity, equable temperature of the part and body, good but not too nitrogenous a diet, and free use of the excretory organs, are also great aids. Electricity is specially useful where there is much stasis; the current used, and how it should be applied, cannot be stated generally. As a rule, galvanisation applied so as to produce a descending current along the spine, or applied to the cervical sympathetic, is the one from which the most satisfactory results have as yet been obtained; but the interrupted current may also be useful. The benefit to be derived from mercurials (from their reputed action in aiding uric acid excretion and lowering pulse tension) has yet to be shown. Calabar bean and hamamelis may also be of service where there is possibly venous spasm and venous stasis. Codeine is the most suitable opiate, unless the pain is very severe, as it acts more especially on the sympathetic, and does not derange the appetite and bowels so much as morphine or opium.

# DISEASES OF THE STOMACH, INTES- TINES, LIVER, ETC.

BY ROBERT MAGUIRE, M.D. LOND., F.R.C.P.,

*Physician to Out-Patients, St. Mary's Hospital; Assistant Physician to the Hospital for Consumption, etc., Brompton.*

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## I.—DILATATION OF THE STOMACH.

THE treatment of this condition has until recently been much neglected in England, though on the Continent, and especially in Germany, it has received due attention for many years. Notices of papers which have appeared in the foreign journals on this subject from time to time have been duly recorded in former issues of the "Year-Book." The use of the stomach-tube has frightened English practitioners and their patients, and to a great extent has led to the neglect of its real value; but familiarity has shown that lavage is by no means such a disagreeable operation as at first sight it appears to be. The patient soon learns to effect the washing for himself, and in the comments which will be made at the end of these notices, it will be shown that he often becomes too much attached to the operation, because of the relief it affords him from any slight dyspeptic symptoms which might safely be left without treatment. During the last year the attention of the profession in England has been forcibly called to the treatment of what is really a very common condition, by a lecture from **Sir William Broadbent** (*Brit. Med. Journal*, Dec. 9, 1893, p. 1268), who discusses the dietetic, medicinal, and mechanical treatment of dilatation of the stomach. In cases of neurotic origin no hard-and-fast rules can be laid down with regard to diet. It is not necessary to restrict the amount of food taken, but the diet should be regulated to suit the idiosyncrasies of each patient. The amount of fluid taken at meals should be limited, and starchy foods must be eaten in small quantities. The patient should be advised not to eat when exhausted, or when excited or anxious; and no work of any kind is to be undertaken for some time after meals. Speaking generally, the food should be varied, so as to tempt the appetite as much as possible, with which object all the resources of good

cooking should be freely employed. The physician must be guided by experience in his choice of stimulants, the effect of which, when taken in small quantities, as part of the two principal meals, is usually beneficial. Good spirit well diluted, or a sound genuine wine, provided it agrees with the patient, may safely be recommended. In cases of gastric dilatation, the result of improper or excessive food, etc., dietetic rules must be more strictly enforced. Temporary starvation and a very limited amount of food for some days form the most useful starting-point for treatment in such instances. The following rules should be insisted on:—Regularity in the hours of meals, and no intermediate food; little fluid with the meals, and very small quantities of starchy material; one vegetable only should be taken at a time.

Sir William warmly advocates the sipping of very hot water with the meals or at bed-time, as a means of stimulating the stomach to contract, and the procedure is often of great value in the treatment of gastric dilatation. The object of medicinal treatment is to correct the morbid chemical changes taking place in the organ, and to promote the contractile energy of the stomach walls. Pain after food should be relieved by bismuth and magnesia or soda and perhaps a small dose of opium, before meals; but it must be remembered that treatment of this kind is palliative only. Antacids are best taken in the form of lozenges. When the gas eructated from the stomach has the odour of sulphuretted hydrogen, he finds the best remedy to be sulphite of soda, given in 5- to 10-grain doses, with carbonate of soda, and nux vomica, between meals. Sulpho-carbolate of soda in 5- to 10-grain doses, with carbonate of soda, spirit of ammonia, and gentian, is also useful for relieving flatulence. Phosphate of soda may be added if the gastric condition is complicated by catarrh of the stomach or intestines. Creasote, and carbolic acid given in pill form, with strychnine, are useful, or  $\frac{1}{24}$  grain of perchloride of mercury can be substituted for one of the two former drugs. Arsenious acid (gr.  $\frac{1}{24}$  to  $\frac{1}{18}$ ) may sometimes also be included with advantage. If these methods fail to cure the disease, lavage of the stomach should be carried out.

Young (*Lancet*, Aug. 18, 1894, p. 381) relates a case of dilatation of the stomach treated by lavage and the administration of the following mixture about an hour after meals:—4 grains of hydronaphthol, 15 grains of salicylate of bismuth, and 10 grains of bicarbonate of soda. He warmly advocates the use of hydronaphthol as an alkaline antiseptic when combined as above.

Boas (*Deut. med. Woch.*, Feb. 22, 1894) gives an account of a



case of acute dilatation of the stomach, and points out that in acute cases of this disorder which are the result of improper ingesta, the timely administration of an emetic will avert the evil result.

Wegele (*Münch. med. Woch.*, March 28, 1894) discusses the treatment of the more severe forms of the affection. He advocates the use of a dry diet and the administration of fluid by the rectum. Rectal alimentation is also necessary in those cases in which lavage of the stomach is carried out. This procedure is best performed, according to Wegele, in the morning. The diet in these cases should be regulated by the condition of the gastric chemistry. If hyperacidity is present, large doses of alkalis are indicated. Fermentation should be treated by harmless antiseptics added to the water used for washing out the organ; and salicylic acid, creasote, and salicylate of bismuth should be given internally. Laxity of the abdominal walls should be treated by a belt.

Wegele considers the prognosis to be greatly improved by the use of a dry diet and the injection of fluid by the rectum.

[As will be seen, from the accounts given above, the treatment may be divided into two categories—the one for the relief of the symptoms, the other for the cure of the gastric dilatation and the conditions which give rise to it—and yet the two sets of remedies cannot be sharply defined. As a result of the dilatation and atonicity of the stomach walls, fermentation of food-stuffs takes place, and the gases given off not only distress the patient, but by still more distending the stomach increase the dilatation. The antiseptic remedies, some of which are mentioned above, not only relieve the patient's symptoms, but at least prevent the increase of the organic disorder. The value of washing out the stomach cannot well be over-estimated, and yet, like all other remedies, it requires to be used with discretion. To pour food into a stomach which already contains a foul fermenting puddle is only to ensure further fermentation, and destroy all the nutritive value of the food. Therefore the lavage should be practised immediately before meals, unless urgent symptoms call for its use at an earlier time. But, in addition to its value in checking fermentation, lavage in itself gives tone to the stomach to a certain extent, probably by mechanical stimulation, and by the effect of the drugs which are often dissolved in the water poured down the stomach-tube. The use of the tube is quite easily learnt by the patient; and, indeed, only the first two or three applications are in any way disagreeable. It must be remembered that the very atonicity which most frequently causes

the dilatation, also prevents the patient from vomiting, and somehow seems to mitigate the nausea produced in other subjects by the passage of a foreign body over the pharyngeal walls. But there are certainly drawbacks to the use of the stomach-tube. Wegele, in the article quoted above, hints at one of them. Some food must be removed by the lavage, and from this the patient gains no nutriment. For this reason, if possible, the tube should not be used until just before a meal, and Wegele insists that extra nutriment should be given by the rectum. I think this is not necessary, if due precautions be taken; and rectal alimentation is always most disagreeable to a patient, whether male or female. But I would insist that neurotic patients should not be taught to use the tube themselves. They are always prone to exaggerate their symptoms, and to have recourse to remedies which, useful at times, are by no means always necessary. This is true of the stomach-tube, and it has occurred to me to see the really normally-digesting contents of the stomach washed out by a neurotic dyspeptic for the relief of purely neurotic symptoms. He suffered from eructations of gas; but this gas was simply air, swallowed unconsciously, for the purpose of being eructated, and a moment's observation of the process convinced one of its origin. Every neurotic dyspeptic must be treated by no fixed rules, but by remedies determined by a careful, common-sense observation of his case. Most of such cases, I think, could be cured, if a doctor, who had the confidence of the patient, could see him very frequently, and almost live with him, though, of course, this is rarely possible. I was able to be of service to one such patient recently, by giving him dry food whenever he complained of dyspepsia. Stimulants, too, are of the utmost value in such cases; but naturally the greatest care is necessary in prescribing them, since they are as likely to be abused as other remedies. Also, in neurotic cases, I think morphia should be tabooed, and indeed it is rarely, if ever, likely to be called for. The pains of the neurotic dyspeptic are real, undoubtedly, but they can be relieved without recourse to opiates.

In dilatation of the stomach of atonic origin, there is nearly always also an atonicity of the bowels, which is best treated by aloes and *nux vomica*. It is better to give small repeated doses of the extract of socotrine aloes, than one large dose, and this also gives an opportunity for administering the strychnine in a way calculated to benefit the stomach as well as the intestines. Usually a grain and a half of aloes extract at night is enough to ensure in a day or two the regular action of the bowels, but this may very conveniently be divided into doses of  $\frac{1}{3}$  grain, or even

$\frac{1}{4}$  grain, given three times a day in pill form, after meals, with as much as  $\frac{2}{3}$  of a grain of extract of nux vomica, a little extract of belladonna, and some powdered pepper or capsicum. The comparatively large dose of nux vomica is of great value in restoring tone to the stomach muscle.

In neurotic dilatation of the stomach, phosphorus is naturally thought of as a remedy likely to remove the actual cause of the disorder. But I have found it to be rarely applicable. The drug, together with the other contents of the stomach, remains so long in the digestive cavity, that the phosphoric eructations become intolerable and disgust the patient. Arsenic is a better nerve-tonic for such cases.

In all cases of atonic dilatation of the stomach, there is also failure of the circulation, and cardiac stimulants are required. The strychnine, given for another reason, is often enough for the purpose, but strophanthus may be required. Digitalis upsets the stomach digestion in most instances. I have lately tried the thyroid extract, as a circulatory stimulant, but, as yet, have not a sufficient number of results to warrant any conclusion being drawn.

As a minor remedy, for flatulence, etc., in association with dilatation of stomach, I may mention oil of cajeput in 3- or 4-drop doses on sugar. It is stimulating and also harmless.—R. M.]

## II.—DYSPEPSIA IN WOMEN.

Saundby (*Ingleby Lecture, Brit. Med. Journal*, March 17, 1894, p. 570 *et seq.*, and March 31, 1894, p. 673 *et seq.*) discusses the nature and treatment of the various kinds of dyspepsia in women. He urges that in any given case of dyspepsia the problems to be solved are :—Is the muscular wall of the stomach active and capable of discharging the gastric contents in due time? Are pepsin and free HCl present in sufficient quantities, and does the gastric juice possess its normal power? Saundby then describes the procedure to be carried out in order that each of these questions may be answered. He goes on to show that atony of the stomach is the most constant, the earliest, and most important factor in the production of the common dyspepsia of women, and traces the effect of this condition on digestion, and its results on the stomach-wall. The question of treatment is considered at some length. Saundby argues, that since exhaustion is the starting-point of these troubles, the essential remedy is rest in bed. The duration of the period of rest must be regulated by the intensity and duration of the symptoms, and should be



maintained until the patient has eaten ordinary diet, without any discomfort, for three or four days. The diet should consist of milk only, at first, and should be gradually increased as toleration is established. Great loss of flesh is an indication for the employment of massage and faradism, as adjuncts to the foregoing treatment. If the disease is associated with hysteria, isolation of the patient should be insisted on. Convalescence should be hastened by change of air and scene, and Saundby enumerates a number of places which, in his experience, have proved most suitable. The dieting of patients suffering from gastralgia, atony, and dilatation of the stomach, etc., is then discussed in detail, and a list of articles which may be eaten at each meal is enumerated. The position of exercise, electricity, and lavage of the stomach in the treatment of dyspepsia and its results is indicated, and the method of employment of each described. Saundby finally considers the use of drugs in this condition, and speaks favourably of the employment of iron, strychnine, the sulphates of magnesium and sodium, mercury, bismuth, etc. He indicates the various forms of dyspepsia in which each drug is most advantageously employed, and the most suitable combinations.

[There is no doubt that Saundby is right in saying that most cases of dyspepsia in women are of the atonic variety, and for this reason, too, the stomach is frequently dilated. R. M.]

### III.—SYPHILITIC DYSPEPSIA.

**Pasquale de Tullio** (*Il Policlinico*, June 1, 1894) advocates the use of the green iodide of mercury in syphilitic affections of the stomach giving rise to dyspepsia. The administration of  $\frac{1}{2}$ -grain doses spread over the twenty-four hours gave excellent results, both locally and generally.

[Dyspepsia occurring in syphilitic subjects is not due to any direct specific influence. In the secondary stage, it is caused by a general febrile condition with catarrh of most mucous surfaces. In the later stages its cause is the marked loss of tone in all parts. The cachexia must be treated by the usual specific remedies, but the dyspeptic symptoms by the methods employed for other cases of indigestion. R. M.]

### IV.—BICARBONATE OF SODA IN GASTRIC AFFECTIONS.

**Linossier** and **Lemoine** (*Med. Chron.*, vol. xix. p. 181, *Mémoires Originaux*, p. 665) have experimented with bicarbonate of soda

in the treatment of gastric affections, and have come to the following conclusions:—

1. Bicarbonate of soda, in all doses, excites gastric secretion.
2. With small doses the excitation continues after the excess of alkali has been neutralised by HCl, and so the chyme becomes richer in HCl.
3. With medium doses the excitation is still more prolonged; the maximum of HCl occurs later but is much higher.
4. With large doses such as 10 grammes, the secretory energy of the stomach is exhausted by its attempt to neutralise the excessive alkalinity, and the chyme leaves the stomach with less than normal acidity; the secretion of HCl stopping almost as soon as the alkali is neutralised.
5. The maximum of HCl occurs two hours after a dose of .5 gramme, three hours after a dose of 1 gramme, and four hours after a dose of 5 grammes of bicarbonate of soda.
6. The presence of bicarbonate of soda favours the production of the acids of fermentation—that is, until the normal acidity is recovered again, and sometimes even after this.
7. The exciting action of bicarbonate of soda is greatest and most prolonged when given in doses of 5 grammes an hour before the meal. A dose of 1 gramme is too little, and one of 10 grammes is too much. A dose of 1 gramme given an hour before meals is the only dose which in these experiments seems to have lessened the production of the acids of fermentation.
8. Given just before meals, bicarbonate of soda suspends the secretion of pepsine.
9. Given an hour after the meal, a dose of 2 grammes only momentarily affects the acidity, and is not followed by excitation; a dose of 5 grammes suspends digestion for a time, but an hour afterwards there is moderate acidity. A dose of 10 grammes also for a time suspends digestion, but in another hour enough fresh HCl has been secreted to neutralise all the bicarbonate of soda, though in the effort to do this the mucosa seems to become exhausted, and normal acidity is not again attained.
10. As far as saturating the acidity and exciting secretion goes, calcium carbonate acts just like bicarbonate of soda, but though the amount of acid secreted is the same, there is less in the free state after the use of calcium carbonate; therefore calcium carbonate is preferable in cases of hypochlorhydria; on the other hand, the acids of fermentation seem to be more abundant after calcium carbonate than after bicarbonate of soda.
11. The action of bicarbonate of soda is not confined to the day on which it is given, for when it has been given for several

days the secretory activity caused by it continues for several days longer. The authors point out that these results were all got from one patient suffering from hypochlorhydria, and hence they need further confirmation.

[We have been accustomed to consider bicarbonate of soda as a sedative to the gastric mucous membrane, but "Ringer's law" will, of course, be remembered, that alkalies stimulate the flow of an acid secretion. In the case of the gastric mucous membrane, matters are somewhat complicated as regards the effect of the alkali on the digestion, for we have two secretions to be poured out, the hydrochloric acid and the pepsine, and in the observations quoted above it will be seen that these secretions were affected differently by the bicarbonate of soda. It is obvious that, valuable as the above experiments may be, yet no conclusions can be drawn from them. They are merely the record of what happened in one case, the patient having already an anomaly of his acid secretion. The dose of bicarbonate of soda recommended—equal to more than 75 grains—is, of course, much larger than we are in the habit of using.

In connection with this paper the following also may be read.—R. M.]

## V.—EFFECT OF BICARBONATE OF SODA ON THE ASSIMILATION OF FOOD.

**K. I. Leplinski** (*St. Petersb. Med. Chir. Acad. Dissertat.*, No. 2, 1893-4) has experimented with bicarbonate of soda in reference to its action on the assimilation of food. He finds that the administration of  $\frac{1}{2}$ -drachm doses of the drug twice daily increases very slightly the assimilation of the nitrogenous principles of the food, and diminishes the metabolism of proteids, while rendering their oxidation more perfect.

## VI.—BISMUTH IN GASTRIC DISEASE.

**Matthes** (*Central. f. inn. Med.*, Jan. 6, 1894) has investigated, both clinically and experimentally, Fleiner's method of treating irritative diseases of the stomach (*See "Year-Book of Treatment,"* 1894, p. 121) with large doses of bismuth. The result of his investigations, carried out on dogs, goes to show that, practically and theoretically, Fleiner's method is correct, except that the position of the patient during the introduction of the drug into the stomach has no influence on its subsequent deposition on the gastric walls.



## VII.—BICHROMATE OF POTASH IN GASTRIC AFFECTIONS.

**Frazer** (*Lancet*, April 14, 1894, p. 923) gives details of eighteen cases of dyspepsia, and ten cases of gastric disturbance, associated with previous hæmatemesis, treated by bichromate of potash. The dose administered varied from  $\frac{1}{12}$  grain to  $\frac{1}{6}$  grain, but as a rule the smallest quantity specified was given. The drug was taken during fasting, and in as empty a condition of the stomach as possible. It may be prescribed in the form of pill or solution, to be taken twice or three times a day. In all the above-mentioned cases the symptoms were quickly relieved; in the majority of instances a cure was effected in a few weeks' time. The action of the drug appeared to be confined to the stomach, and had no effect on the accompanying constipation or anæmia.

[Another irritant, nitrate of silver, was at one time given in gastric affections; but, while good results often followed its use, it was doubtful whether they were due to the drug, and so it has fallen out of favour.—R. M.]

## VIII.—THE ADMINISTRATION OF DILUTE NITRO-HYDROCHLORIC ACID.

**B. Lockhart Gillespie** (*Medical Press*, 1893, No. 2808, p. 219) concludes, from laboratory experiments, that nitric acid probably hinders the action of hydrochloric acid, by attaching itself to proteid molecules. He suggests that in prescribing dilute nitro-hydrochloric acid, a little dilute hydrochloric acid should be added; and he finds, practically, that such a combination is productive of the happiest results in the treatment of dyspepsia, where the liver is out of order, producing portal congestion, and decreased secretion of gastric juice. A similar combination is also most suitable for the treatment of frontal headache, relieved by the administration of acids.

[I have noticed also that dilute nitric acid alone not infrequently causes undue relaxation of the bowels. The reason for this I do not know.—R. M.]

## IX.—GASTRIC NEUROSIS.

The *Archives of Pediatrics* (Dec., 1893) contains the report of a discussion on gastric neurosis in children in which the symptoms of meningitis were simulated.

**Irving Snow** gave the details of a case which was relieved at once by the administration *per rectum* of large doses of chloral and bromide.

**Rotch** said that his attention had been called to this condition in children, and that **Leyden** had made similar observations in adults. The symptoms were the result of reflex disturbance of the stomach, and were not influenced by diet. Treatment consisted in withdrawing all food for twenty-four or thirty-six hours and the administration of nerve sedatives by the rectum.

[This is an illustration of reflex action of gastro-intestinal disorders, an action most common in children, but not unusual in neurotic adults, as **Leyden** has noticed. The record may fittingly be followed by the paper below.]

#### X.—PULMONARY CONGESTION OF GASTRO-INTESTINAL ORIGIN.

**Huchard** (*Rev. Gén. de Clinique et de Thérapeutique*, No. 7, 1893) describes a case of gastric disturbance associated with signs of broncho-pneumonia. **Huchard** was led to suppose that the pulmonary condition might be the result of gastro-intestinal causes, and he came to the conclusion that the principal therapeutical indication was to establish intestinal antisepsis. He first administered a purgative of calomel and resin of scammony, followed by five daily doses of 1 gramme of benzo-naphthol and two spoonfuls of powdered charcoal. The gastro-intestinal and pulmonary symptoms rapidly disappeared, a result which had not been obtained by previous revulsive and expectorant treatment.

[The importance of intestinal antisepsis will be noticed in remarks below. The case related above seems to be an instance of this. We carry with us continually a supply of poisonous matter in the intestine, ready to work evil if only the resistance to its entrance be enfeebled. This may be caused by any disease, and hence the old-fashioned idea of first clearing out the *prima via* before treating any febrile disease. What the explanation of the above case may really be is not clear. The idea of the author appears to be that a poison absorbed from the alimentary canal circulated in the blood and caused the pulmonary congestion. But it may well be that the pulmonary disease caused a general disorder, which the purge relieved.—R. M.]

#### XI.—GASTRIC ULCER.

**Stepp** (*Therap. Monats.*, Nov., 1893) speaks very highly of the value of chloroform water in the treatment of chronic gastric ulcer. He uses the following combination in such cases:—

R Chloroform. m. xv.

Bismuth. subnit. gr. xlv.

Aq. ad.  $\frac{3}{4}$  iv.

S. A tablespoonful every hour.

He ascribes the beneficial action of the chloroform to its antiseptic, astringent, and hæmostatic properties. It probably also acts locally as a stimulant, thus promoting the formation of healthy granulation tissue.

[Antiseptic, astringent, and hæmostatic effects can be of no more than intermediary use in curing gastric ulcer. The real treatment must be directed to giving the stomach rest, and therefore relieving the ulcer of the irritating influence of digestive juice, which is primarily the cause of the disorder. In the first place, we have to deal with a disorder of nutrition, which renders the gastric mucous membrane in parts liable to self-digestion. This must be combated eventually, but immediately the effects of that digestion must be overcome. For this purpose it is best that the stomach have absolute repose, and best of all that the patient should go to bed and submit to rectal alimentation. This she will rarely endure unless a gastric hæmorrhage has caused alarm. Then she will submit, and the disorder is easily cured. But, in the absence of this fortunate accident, no food should be given by the mouth which can cause undue excitation of the peptic and acid glands. Milk and lime-water—2 parts of milk to 1 part of lime-water—should be given in a coffee-cupful dose every two hours, and no solid food beyond this. The liquid food may be varied occasionally by arrowroot and barley-water—never beef-tea or meat juices; and though the patient may complain of weakness and inability to do her work, this is really the best means of cure. As Saundby has stated in a paper quoted above, rest in bed is very desirable, and removes the complaint of weakness which the treatment renders necessary. We cannot treat cases of gastric ulcer exactly as we should wish. The patients, unless they are alarmed by a hæmorrhage, will not realise the gravity of their condition. But the directions hinted at above will often lead to a cure, in spite of disadvantageous circumstances. If hæmorrhage occurs, there is only one course to be pursued. The patient must be put to bed at once, and not one drop of food must be given by the mouth. Rectal feeding must be prescribed, either by nutrient suppositories, or by injections of peptonised milk, beef-tea, and egg-yolk. The treatment of the hæmorrhage itself does not call for illustration in the present reference. When the immediate and urgent symptoms due to the ulcer have disappeared, the cause of the disease ought to be



combated, principally the anæmia and its accompanying general malnutrition. This is beyond the scope of the present article.—R. M.]

## XII.—CANCER OF THE STOMACH.

### **Chlorate of Sodium.**

Brissaud (*Gaz. Méd. de Strasbourg*, May 1, 1894) has employed chlorate of sodium in the treatment of cancer of the stomach with the most beneficial effects. Indeed, so remarkable were the results of the treatment that Brissaud suggests the possibility of a mistaken diagnosis. The majority of the cases exhibited, in addition to the ordinary symptoms of gastric carcinoma, a well-defined tumour in the epigastric region.

The drug was administered in doses ranging from 8 to 16 grammes in the twenty-four hours. Brissaud gives it in teaspoonfuls mixed with 100 grammes of water. The amount given in the twenty-four hours should not exceed 16 grammes, and the only contra-indication to the use of the drug is the presence of albuminuria. After exhibiting chlorate of sodium in daily doses of 12, 14 and 15 grammes for about six weeks, Brissaud found that the melæna and hæmatemesis entirely stopped, the cachexia disappeared, and the tumour could no longer be felt. The treatment is specially applicable to the epitheliomatous variety of cancer, in which there is no extension of the morbid growth to neighbouring viscera, and no complication such as thrombosis or phlebitis.

### **Pyoktanin in Cancer of the Stomach.**

Maibaum (*Meditzina*, Nov. 7, 1894) describes three cases of advanced carcinoma of the stomach treated by pyoktanin. The drug was administered in 1-grain doses three times a day, in the form of pills taken after meals, or as rectal suppositories. In all cases the treatment was quickly followed by marked improvement in the local and general condition of the patients. The dyspeptic symptoms subsided, the appetite returned, and the body-weight increased. Maibaum concludes that pyoktanin arrests the disintegration of cancerous growths, and has a beneficial action on the general health of patients suffering from the cancerous cachexia.

### **Cancer of the Stomach (Diagnosis).**

Cohnheim (*Deut. med. Woch.*, May 17, 1894) asserts that a fairly certain and early diagnosis of gastric carcinoma can be made in the absence of a tumour. He contends that this is the only condition in which Uffelmann's test for lactic acid gives a marked result in association with the absence of free HCl. He quotes

ten cases in support of his contention, and urges the importance of this observation in the early diagnosis of gastric carcinoma.

Hanot (*Arch. Gén. de Méd.*, October, 1893) observes that total and absolute anorexia is the rule in cancer of the stomach and liver. He refers, however, to four cases of cancer of stomach, in two of which the appetite was excessive, while in the other two it was normal. Consequently he urges that too much stress must not be placed on this symptom in gastric carcinoma; and the same observation applies to cancer of the liver, though in a less degree.

[I think that no case of carcinoma of the stomach, or of any other organ, was ever cured, except by excision of the diseased part. I have seen more than one case where a disorder presenting all the symptoms of carcinoma was apparently cured by very simple remedies. The reason for this is hinted at by Brissaud—a mistake of diagnosis! This is one of the easiest possible mistakes that a physician can make. It is curious that in abdominal diseases, where the physician has the diseased part actually under his hand, he should be so liable to be led astray, and yet so it is. Nervous diseases are comparatively simple. But in the abdomen there are so many organs which may cause the symptoms of disease, so many, too, which lie near each other, that the most careful physician is at times perplexed to give an opinion. This is the cause of so many so-called cured cases of cancer of the abdomen, and the real history of the cure is that there was no cancer. At the same time I would call attention to the fact that cancer of the abdomen, especially cancer of the stomach, frequently produces as its first symptom an absolute loss of appetite. In cancer of the stomach this symptom is very rarely absent, and yet sometimes in the early stages an abnormal appetite may be noticed; but this is not sustained, and eventually complete anorexia will be observed. This is true, in a less degree, of carcinoma of the other parts of the abdomen. The anxious and drawn countenance of patients suffering in such a way need scarcely be noticed. It is present also in inflammatory diseases. But in cancerous diseases of the intestines there is another symptom to which attention should be called, and that is alternate constipation and diarrhœa. Naturally, this is present in other disorders than those which are malignant; but it is a significant symptom, and should be noted. As to prognosis, however, a cancer, especially in old subjects, may remain latent for a long time and may cause no very serious disorder to health if it do not obstruct any vital passage. Its symptoms may be comparatively unimportant, and so may be overlooked. But if it once produce secondary deposits—and in this

reference they will nearly always be in the liver—those secondary deposits are sure to grow most rapidly, and the end is certain to be not far distant, whatever may be the effect of the primary growth.—R. M.]

### XIII.—GASES OF THE STOMACH.

James McNaught (*Med. Chronicle*, vol. xix. p. 73) discusses the formation of gas in the stomach. His conclusions are: (1) That the formation of hydrogen, and sometimes marsh gas, in the stomach is more common than was formerly supposed; (2) that the production of gas is usually the result of the retention of food in the stomach; (3) that hydrogen preponderates in non-malignant cases of stenosis of the pylorus, in which there is an excess of HCl secreted; (4) that in stenosis of carcinoma the gas is chiefly CO<sub>2</sub>; (5) that SH<sub>2</sub> may be formed in the stomach in cases of retention of food; (6) that in certain cases flatulence is due to swallowed air; (7) that the most efficient antiseptic is salicylic acid, or salicylate of sodium.

McNaught has had no experience with the newer antiseptics, *i.e.* phenol-bismuth, cresol-bismuth, tribromphenol-bismuth, chlorphenol-bismuth, resorcin-bismuth, and betanaphthol-bismuth.

[The chemistry of the digestive processes of the stomach has received attention in former issues of the "Year-Book." But as the importance of the observations on these subjects has been so repeatedly referred to, it has now been put somewhat in the background of the references. Yet the scientific aspect of the subject is still of all importance to therapeutists, and therefore a few abstracts are now appended. Attention is especially called to the careful observations of McNaught, whose work on the gastric digestion has been noted so many times formerly in the "Year-Book." They are conclusions drawn from repeated experiments, and are the more valuable since they record repeated observations of honest and reliable work. Their value in clinical work is not yet apparent, but the experiments are in the right way, and may lead eventually to useful results.—R. M.]

### XIV.—THE ACIDS OF THE STOMACH.

#### Free HCl in Gastric Juice.

K. E. Wagner (*Vratch*, Nov. 1, 1894, p. 17) concludes, from an examination of 216 patients, that (1) the absence of free HCl in the gastric juice cannot be regarded as pathognomonic of cancer of the stomach; (2) its absence simply affords additional evidence in favour of the disease, suspected on other grounds; (3) the



absence of free HCl appears to favour the development of gastric carcinoma.

### XV.—FREE HCl IN CHLOROSIS

Osswald (*Münch. med. Woch.*, July 3 and 10, 1894) concludes, as the result of eighty-four investigations on twenty-four patients suffering from chlorosis, that free HCl is always present in excess in the stomach. In any event the dyspepsia in this condition is not due to hypo- or ana-chlorhydria, nor to motor insufficiency of the stomach walls. In 95 per cent. of the cases the amount of HCl in the gastric contents was increased. The author further suggests that in those instances in which treatment by iron salts has failed, alkalies should be administered.

### XVI.—LACTIC ACID IN THE STOMACH CONTENTS.

Boas (*Münch. med. Woch.*, Oct. 24, 1893) states that definite and positive results are given by Uffelmann's test for lactic acid in carcinoma of the stomach. In order to confirm this, he has adopted a new and more exact test for lactic acid, and as the result of his observations during the past three years, has come to the following conclusions:—

No lactic acid occurs in any stage of healthy digestion, even in the absence of free acid. Moreover, it is practically absent in chronic gastric catarrh, atony and neuroses of the stomach, as well as in non-malignant strictures. In twenty-one cases of gastric carcinoma lactic acid was present and free HCl absent. The importance of the presence of lactic acid in such circumstances is due to the fact that free HCl is absent in other conditions besides cancer. Boas concludes that the presence of lactic acid confirms the diagnosis of cancer, but its absence does not exclude this condition. He hopes that by this means the diagnosis of gastric carcinoma may be made earlier, and thus render total extirpation of the growth more practicable than is the case in the present state of our knowledge.

### XVII.—HYPODERMIC ALIMENTATION.

Caird (*Edin. Med. Journal*, Sept., 1893) reports a case in which an attempt was made to improve the condition of the patient by hypodermic alimentation. Intramuscular injections of olive oil were made, and the patient appeared to derive benefit from the treatment. Three to four ounces of the oil were injected into the gluteal region in the course of a week. The procedure

was followed by no ill-effects whatever, and Caird considers the process capable of further extension.

### XVIII.—INTESTINAL ANTISEPSIS.

The *Brit. Med. Journal* (April 21, 1894, p. 870), under the title of "Studies in Therapeutics," contains an article discussing the present position of intestinal antiseptics, and the application of antiseptic drugs in various morbid conditions. It is shown that food, in the physiological changes which it undergoes preparatory to absorption, passes through stages, some of which are actually poisonous. Peptones, for instance, are poisonous when injected into another vein than one of the portal system. Again, leucomaines, or the alkaloids prepared in the living body, are excessively poisonous. Also the products of putrefaction in the intestines, such as indol, skatol, and phenol, require to be combined in the liver with sulphuric acid, before they can be safely eliminated by the kidneys. **Borklish** has shown that germs of sporadic cholera can elaborate their poison only in the presence of the germs of putrefaction.

A large number of drugs are now used to limit the process of putrefaction in the intestine. Amongst these, one of the chief is perchloride of mercury. Beta-naphthol, hydro-naphthol, naphthaline and alpha-naphthol are all recommended as intestinal antiseptics because of their being insoluble and hence non-poisonous. Salol is recommended for duodenal indigestion, since it is only on reaching the duodenum that it is split up into carbolic and salicylic acids. The symptoms calling for its use are pain and distension some hours after food, with irregular action of the bowels and frothy offensive stools. Betol, too, is similarly broken up into beta-naphthol and salicylic acid. Carbolic acid, the sulphocarbolates, aseptol, creasote, guaiacol, iodoform, chlorine, benzoate of sodium, resorcin, thymol, and boracic acid, have all been used as intestinal antiseptics, but are either poisonous or too soluble to reach the intestine. It has been recommended to cleanse the lower end of the bowel by irrigation, with boracic acid or some other antiseptic.

It is also said that a milk diet is less likely to be accompanied by intestinal putrefaction than one containing more proteid. The writer of this article describes as the symptoms of abnormal decomposition in the intestine, diarrhoea with excessively offensive and perhaps fermented stools, and flatulence, with abdominal pain and distension, and suggests, too, that the entrance of the poisonous matters into the general system may cause

anæmia, mal-nutrition, vomiting, headache, and other nervous symptoms.

It is suggested, too, that the bowel should also be cleansed antiseptically before the operation of enterotomy.

An intestinal antiseptic, and the administration of a food such as sterilised milk, little liable to decomposition, is recommended in simple putrefaction in the alimentary canal. Again, many observers have noted that the use of intestinal antiseptics in typhoid fever curtails the fever and diminishes the number of complications.

Salol and the naphthol group are said to be useful in tuberculous enteritis, and guaiacol, also, suspended in cod-liver oil, has helped, it is said, in the arrest of such cases. **William Hunter** has recommended the use of intestinal antiseptics in pernicious anæmia, and they have been suggested lately in diabetes, ordinary anæmia, uræmia, and rheumatism.

[Attention may again be called to the remarks made in the last issue of the "Year-Book" as to the difficulty of explaining the action of these antiseptics, on account of the small doses usually given. Yet whatever their action may be, there can be no doubt of their efficacy in suitable conditions.—R. M.]

## XIX.—MILK DIET AND ASEPSIS OF THE ALIMENTARY CANAL.

**Gilbert** and **Dominici** (*Société de Biologie*, March 17, 1894) show that the adoption of a purely milk diet is followed by a very great reduction in the number of micro-organisms in the alimentary canal, and it is probably to this fact that the beneficial effects of a milk diet in cases of dyspepsia, diarrhœa, dysentery, etc., are largely due.

[See also the remarks quoted from the article mentioned above.]

## XX.—DIARRHŒA.

### Salol.

**Skinner** (*Med. Chron.*, vol. xix. p. 237) advocates the use of salol in the treatment of diarrhœa. He considers that the drug is applicable to almost all forms of diarrhœa. He gives it in doses of 10 to 15 grains in a spoonful of gruel or barley water, and this may be repeated every four or six hours. It is rarely rejected by the stomach, and does not produce unpleasant after-effects in the doses above mentioned. Skinner refers to 23 cases of summer diarrhœa treated by salol, in which one only proved



fatal. It was seldom necessary to give more than three or four doses of the drug. It is equally useful in ordinary catarrhal diarrhœa, diarrhœa of children, diarrhœa occurring in the course of some other diseases, and in the diarrhœa of tuberculosis ; it can generally be relied on to give temporary relief. Skinner thinks it is worthy of a trial in cholera.

### **Salacetol.**

**Bourget** (*Correspond. Blatt. f. Schweizer Aerzte*, xxiii. No. 14) warmly advocates the use of "salacetol" (a compound of salicylic acid and acetone) in the treatment of summer and choleraic diarrhœa. It should be given in a purgative oil, such as castor oil, and on an empty stomach. Bourget has obtained most successful results with this drug, and finds that a second administration is rarely necessary.

## **XXI.—INTUSSUSCEPTION.**

**J. T. C. Williams** (*Brit. Med. Journal*, Aug. 14, 1894, p. 800) describes a case of intussusception occurring in a child of eight months, in which all the recognised methods of treatment were tried without success. Laparotomy was objected to by the parents, and Williams had recourse to the following procedure. He made two separate solutions of about half a pint each, in one of which was dissolved a drachm and a half of citric acid, and in the other two drachms of bicarbonate of soda. A flexible catheter was attached to a Higginson's enema syringe, and passed into the bowel for about nine inches. The acid solution was first injected, followed by the gradual introduction of the alkaline fluid. Carbonic acid was generated, and the abdomen became distended. The catheter was quickly withdrawn, and the escape of gas was prevented by pressing the nates firmly together.

After a few minutes the abdominal tension disappeared, the vomiting ceased, and in two days the child passed a natural motion.

Williams remarks that it would be interesting to know the volume of gas generated by the combination of known quantities of various acids and alkalies, and the amount of CO<sub>2</sub> that might be generated within the bowels with safety.

## **XXII.—TYPHLITIS.**

**Therig** (*Central. f. inn. Med.*, Feb. 3, 1894) lays stress on the value of the hypodermic injection of morphia in typhlitis, and on the good results following lavage of the stomach in the vomiting of peritonitis complicating typhlitis.

## XXIII.—MUCO-MEMBRANOUS ENTERITIS.

Sée (*Académie de Médecine*, Dec. 26, 1893) considers that in about a third of the cases of so-called dyspepsia occurring principally in women, the patient is suffering from muco-membranous enteritis. The symptoms of this condition are pain and swelling over the colon, flatulence, and the passage of mucous glairy stools mixed with cylindrical masses. The cause of the malady is chronic constipation, and it should be treated as follows:—The bowels should be emptied by enemata, and purgatives avoided. The pain should be relieved by bromide of calcium or strontium, indian hemp or opium, and fermentation prevented by the administration of a combination of phosphate, salicylate and borate of sodium. Dietetic restrictions are not an essential part of the treatment.

Revilliod (*Lyon. Méd.*, Dec. 24, 1893) has obtained excellent results in the treatment of membranous colitis by the use of large injections of bismuth. He uses half a litre of the following combination at each injection:—

Bismuth. subnit....	...	...	...	10 parts.
Sodæ salicyl. ...	...	...	...	10 „
Mucilage ...	...	...	...	500

His method of procedure is as follows:—The colon is washed out by an enema of castor oil, or ipecacuanha, followed, if necessary, by the injection of a solution of boric acid. The patient is then placed on his back, with the buttocks raised, and the bismuth injection is slowly introduced, and should be retained for 24 hours. If this cannot be done, a smaller injection is employed. Slight constipation is produced by the treatment, but no other discomfort is observed. Cases of some months' duration were cured by a single injection of the bismuth, but in others the procedure had to be repeated before a cure was effected. The treatment was also successful in chronic dysentery, and in allied conditions associated with ulceration of the large bowel.

## XXIV.—DYSENTERY.

N. K. Rüdneff (*Meditzinskoie Bhozreine*, No. 20, 1893, p. 747) has obtained good results in the treatment of dysentery with lysol enemata. He uses a 1 per cent. aqueous solution, one pint being injected three times a day, until blood disappears from the stools. This occurred on the 2nd day in eleven cases, on the 4th in three, and on the 6th to 8th in two. All the patients

experienced great relief on the 2nd or 3rd day, and in every case recovery was complete.

## XXV.—PRURITUS ANI.

Berger (*Zemsky Vrach*, No. 13, 1893, p. 213) recommends chlorinated lime in the treatment of pruritus ani. A piece of cotton wool soaked in liquor calcis chlorinatæ is introduced for about one inch into the anus. As soon as slight burning or smarting is felt, the plug is removed, and the anal region washed with the solution and left to dry spontaneously. Itching is said to disappear instantaneously, and after a few days' treatment any local eczematous condition is also cured.

[Pruritus ani, and the eczema of the nates which so frequently accompanies it, are really due, I believe, to an acrid secretion from the lower bowel. This secretion is produced by an irritative catarrh of the bowel, caused by the gouty diathesis, highly nitrogenous diet, abuse of spices, etc., and frequently by piles. The cause of the pruritus should always be investigated, and if possible removed. The diet should be regulated in every case. Cleanliness after defæcation is all-important. After every action of the bowels, the parts should be washed with a superfatted soap of some kind, and well dried without friction. The application I have found to be the best is an ointment pomade according to the following formula :—

R Creolin	...	...	...	...	gr. xx.
Resorcin	...	...	...	...	gr. xx.
Lanolin	...	...	...	...	ʒj.

M. F. ung.

To be applied at night.

But the application should not be limited to the external parts alone. Some of the ointment should be introduced into the bowels, either by the finger or by a special instrument. R. M.]

## XXVI.—THE DIAGNOSIS OF ABDOMINAL TUMOURS.

William Osler (*New York Med. Journal*, Feb. 3, 10, 17, March 31, April 7, 21, May 5, 12, 1894) gives details of 56 cases illustrating the difficulty of diagnosis in abdominal tumours. He describes the principal methods, conditions which occur, and the features which characterise each in different situations. This series of lectures by Professor Osler forms an admirable survey of the whole subject of the differential diagnosis of abdominal tumours, but a short abstract of it is impossible.



## XXVII.—INTESTINAL PARASITES.

**Anchylostoma duodenale.**

**Dobson** (*Brit. Med. Journal*, Oct. 7, 1893, p. 807) testifies to the value of thymol as a vermifuge in the treatment of anchylostomiasis.

**F. M. Sandwith** (*Lancet*, June 2, 1894, p. 1362), as the result of his observations on 400 cases of anchylostomiasis, recommends thymol in the treatment of this condition. The dose should not exceed 4 grammes, administered in two equal quantities at an interval of two hours, and in weakly subjects it should be followed by some stimulant, such as brandy. A dose of castor oil should be given two hours after the second half of the thymol. A milk diet should be adopted the day before and after the taking of the thymol.

**Tapeworm.**

**Leslie Ogilvie** (*Lancet*, Aug. 4, 1894, p. 255) discusses the treatment of tapeworm, and considers that the difficulty which is so often experienced in completely expelling the parasite is mainly the result of the faulty method employed in the administration of the vermifuge. He advocates the following procedure: The patient should eat less than usual for a few days, and on the day on which the treatment is commenced should have a milk diet only. A purgative consisting of sulphate of magnesia with tincture of jalap should be given at night and repeated the following morning if the bowels have not been moved. A drachm of the liquid extract of malefern is taken on an empty stomach, followed after an hour's interval by a second dose; two hours after the second administration of malefern, a large dose of castor oil should be given, and the evacuations carefully examined for the head of the parasite. Ogilvie states that this method of treatment is usually successful in expelling the worm.

## XXVIII.—TREATMENT OF GALL-STONES.

**Brockbank** (*Med. Chron.*, xix. p. 152 *et seq.*) discusses the treatment of gall-stones. As the results of laboratory experiments, he comes to the conclusion that the inorganic salts of sodium and potassium have no solvent action whatever on gall-stones; on the other hand, he finds that olive oil, oleic acid, and animal soap have a remarkable solvent action on these bodies.

Brockbank, as the result of his experiments, advocates the following treatment of gall-stones:—

*Medicinal*: The inorganic salts of sodium and potassium, though useless for the purpose of dissolving the stone, are of

great assistance in promoting an increased secretion of bile, whereby calculi, dissolved by other means, can be washed out of the bile passages.

Salicylate of soda, given in 20-grain doses three times a day, is particularly useful for this purpose. Phosphate or sulphate of soda has the advantage of promoting the action of the bowels, as well as increasing the flow of bile.

Turpentine, ether, chloroform, and belladonna owe their beneficial action to their antispasmodic effects.

Brockbank advocates the use of olive oil, which may be administered in large doses *per rectum*. Sapo animalis is not so objectionable and equally efficacious, and is worthy of a trial.

*Dietetic*: Plain living must be enjoined, and the avoidance of saccharine and starchy foods and "made-up" dishes. Alcohol should be prohibited.

Exercise is all-important, either on foot or horseback, and if impracticable, should be replaced by gymnastics.

## XXIX.—JAUNDICE.

Garland (*B. M. J.*, Feb. 3, 1894, p. 283) gives details of a case of jaundice in a man aged fifty-six, which was treated successfully by beer "in the fermenting stage." Improvement commenced in a few days, and a cure was effected in a few weeks.

### Icterus.

Arnozan (*Arch. Clin. de Bordeaux*, June, 1894) attributes the failure of therapeutic measures in the treatment of icterus gravis to ignorance of its microbic origin. He advocates the use of antiseptic remedies in this disorder, and narrates a well-marked case of icterus gravis treated successfully in this way.

He employed a milk diet, and prescribed a mixture consisting of equal parts of  $\beta$ -naphthol, sulphate of quinine, and charcoal administered in daily doses of 3 grammes, 60 centigrammes, divided into eight cachets. In addition, night and morning, a subcutaneous injection of 1 centigramme of carbolic acid, diluted in  $\frac{1}{2}$  c.cm. of distilled water, was made. The patient was also freely stimulated with wine, rum, ammonia, and bark.

The injections of carbolic acid should not be employed in those cases in which there is coma, excessive debility, or a marked tendency to cutaneous hæmorrhages.

### Acute yellow atrophy of the liver.

Werthel (*Münch. med. Woch.*, Jan. 23, 1894) records a case of acute yellow atrophy in a child, and calls attention to the soothing effect of large rectal injections in this disease.

## XXX.—CIRRHOSIS OF THE LIVER.

**Senator** (*Berl. klin. Woch.*, Dec. 18, 1893) advises a milk diet, and the administration of iodide of potassium in portal cirrhosis. He also advises early puncture in ascites. In biliary and Hanot's hypertrophic cirrhosis he advocates the use of high injections of oil, soap-and-water, or solutions of salicylates, combined with massage of the liver, and the occasional administration of cholagogue purgatives. He thinks that prolonged warm baths with massage, and a course of Carlsbad waters with suitable diet, of some effect on the outflow of bile.

## XXXI.—MERCURIC CHLORIDE IN THE TREATMENT OF ECHINOCOCCUS.

**Blumer** (*Corresp. Blatt. f. Schweizer Aerzte*, No. 7, 1894, p. 216) employed a 1-1000 solution of mercurial chloride as an injection in a case of echinococcus of the liver. Two injections were made, 5 drachms in the first instance, and an ounce on the second occasion. The patient showed notable improvement after the second injection, and the condition gave promise of being on the way to gradual subsidence.

[Many of the foreign extracts quoted above are taken from the "Weekly Epitome" published in the *Brit. Med. Journal*.]



# DISEASES OF THE KIDNEYS, DIABETES, ETC.

BY CHARLES HENRY RALFE, M.A., M.D. CANTAB., F.R.C.P. LONDON,

*Physician to the London Hospital, etc.*

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## 1.

## I.—SYNOPSIS.

THIS year is characterised by a further development of the reaction against "exclusive" diets, as the milk in Bright's disease and the proteid in diabetes. With regard to the former, last year we called attention to the commencement of a revolt against an exclusive and continuous milk diet in Bright's disease, and predicted that considerable modifications would be introduced in the indiscriminate and routine prescribing of milk diet in all forms of albuminuria. And these modifications, as our extracts for this year show, are beginning to take effect. But it is necessary to be on our guard against a too extreme reaction. For whilst there probably has been an abuse of milk, it no doubt has its use. The very general adoption of the "exclusive milk diet" would not have taken the hold it has of the professional mind, unless it had proved in a large majority of cases of exceptional value. It is, indeed, only in advanced cases that its employment has been found to be unsuitable, and even in these the principle of the milk diet—light and non-stimulating—must not be lost sight of, only a more solid food substituted, as fish, rice, arrowroot, etc., anything like an adoption of a full or even ordinary diet being most harmful as regards the renal organs, and by inducing increased arterial tension likely to cause cerebral hæmorrhage. As regards diabetes mellitus, the same disposition to relax the severity of the rigid exclusion of carbo-hydrate food that has hitherto been enforced is noticeable. In the "Year-Book," 1893 (§ 7, p. 137) it was debated whether in confirmed and protracted cases it was best to allow some relaxation at the risk of increasing the amount of sugar in the urine, or to enforce the rigid diet to the end. It

was then pointed out that in the weak and enfeebled diabetic the exclusive proteid diet might be as injurious as the ingestion of carbo-hydrate, by leading to the formation of acid toxins, the precursors of acetone in the urine. Dr. Pavy's admirable remarks on the dietetic treatment of diabetes, of which an abstract appears in this year's summary, points still more decidedly in favour of relaxation in such cases as are possible when the disease is no longer actively progressing. Here, again, we must not allow the reaction to carry us too far, and it is a question whether the improvement in the diabetic's diet should not come rather in the form of a limitation of quantity than of any relaxation of strictness as regards quality. When one reflects on the enormous amount of food a feeble diabetic patient is encouraged to consume, is it to be wondered at that his metabolic powers fail, and that toxins accumulate in his tissues and hasten his end by coma? Among other contributions noticeable, one by Dr. Thorndike on "Phosphaturia" calls for special commendation; in it he distinguishes between the mere precipitation of phosphates from alkaline urine, and the conditions under which the earthy salts are eliminated in excess—two conditions which are apt to be confounded. The question whether asparagus has an inhibiting or a diuretic action is still left unsettled. No doubt asparagus often appears to act as a diuretic, but whether there is an actual increase of quantity or only increased frequency is not clearly shown. Again, it is thought that the first action may be to diminish the quantity and afterwards to increase it. These contradictory opinions may perhaps be reconciled, as was pointed out in the "Year-Book," 1892, p. 175, § 20, by considering whether the green variety or the white was used for purposes of experiment.

## II.—TREATMENT OF RENAL DISEASE.

### 2.

**Howship Dickinson** (*Lancet*, Feb. 10, 1894) contributes a highly practical paper on renal disease due to nephritis. With regard to acute nephritis or acute renal dropsy, he insists on rest in bed; warmth and liquid diet are essential. The food should consist not only of milk, but of thin beef-tea and light animal broths; aqueous drinks should be freely permitted. After a calomel purge he strongly advises small quantities of potassic tartrate of soda, as a laxative and mild diuretic. If more is required to keep the bowels open, a morning potion of sulphate of magnesia should be added. *Digitalis* ought to be given only if the urine is

very scanty, otherwise the whole class of diuretics should be avoided. Should there be much hæmaturia with anæmia, the sulphate or perchloride of iron may be given with a little sulphate of magnesia. In granular and cirrhotic kidneys, as Dickinson well remarks, there may be periods of quiescence with no obtrusive symptoms. Diet and climate are the most important agencies in the management of this stage of Bright's disease. He allows farinaceous and vegetable food without restriction, milk without stint, and abundance of aqueous drinks. A purely milk diet is not entirely advantageous. He makes some exceedingly valuable remarks on the advantages and disadvantages of the climates to which albuminuric patients are sent. A low relative humidity encourages evaporation and vicariously relieves the kidneys. He thinks patients who cannot travel as far as Egypt or Algiers may be content with Bournemouth, Torquay, or Ventnor, whilst Falmouth or Penzance is better than any of these places. As regards treatment, he advises a ferruginous laxative on going to bed and on rising, so that the bowels may act twice a day. Iron must, however, be given with caution if the patient be full-blooded, over-fed, or constipated. As uræmia is one of the natural terminations of nephritis, to prevent its occurrence or diminish its risk if established, he depends on the vapour bath. If the patient is unable to bear the whole bath, it should be used partially to the lower extremities. A useful adjunct to the vapour bath is to place the patient in an ordinary bath at 100° F. Should these means fail to induce perspiration, then an injection of pilocarpine should be resorted to. With regard to dropsy, digitalis is invariably indicated. Hydragogue purgatives and hot-air baths have their use and also their abuse, whilst mercurials are not to be too rigidly excluded. Renal asthma must be treated by the uræmia causing it. Ether alcohol and nitrites may temporarily relieve, but the mainstay is in the evacnants, hot-air baths, calomel, and hydragogues. [No mention is made of the treatment of this and other distressing uræmic symptoms by means of small doses of morphine, which has become quite a recognised method of treatment—*vide* "Year-Book," 1887.] Speaking of lardaceous disease of the kidneys, there is much to suggest potash, which he suggests on purely theoretical grounds; but general restoratives are what ought to be mainly relied on, viz., a liberal diet, sea air, iron and quinine, and cod-liver oil. Of all places Margate is most beneficial for the patients. When the lardaceous disease is manifestly the result of syphilis, the effect of the long-continued use of iodide of potassium and iodide of iron is remarkable.



### III.—TREATMENT OF CHRONIC BRIGHT'S DISEASE.

#### 3.

**M. Huchard** (*Med. Press and Circular*, vol. i. p. 642, 1893) thus indicates the treatment of the interstitial nephritis characterised with a copious diuresis and slight albuminuria and failing heart. As regards diet : for fifteen days an exclusive milk diet, about 10 ounces every two hours, should be given with a teaspoonful of a mixture containing  $2\frac{1}{2}$  ounces of liquid extract of kola, and 4 ounces of extract of coca, given with the milk at 8 a.m. and at noon, with a view to prevent the weakening action of the milk. Should this diet disagree, Vichy water should be added, and wafers of benzo-naphthol and pancreatin, made by mixing 1 ounce of the former with  $2\frac{1}{2}$  drachms of the latter to make forty wafers, may be given in quantities of five or six a day. If the milk prove distasteful, it should be flavoured with a little rum, cherry water, etc. After the first fortnight of the milk diet, solid food may be given so long as a good deal of milk is used in its preparation. Subsequently, every month the patient must return to this milk diet to ensure thorough diuresis, whilst for some months he may eat no meat. With respect to treatment, Huchard advises that for three days each month the patient should take a pill containing 1 grain each of digitalis, squill and scammony, whilst for twenty days 6–10 grains daily of iodide of sodium should be given. Great attention should be paid to the state of the skin, dry friction, with the application of some stimulating liniment, being of great use.

#### 4. Milk diet in albuminuria.

**Vergely** (*Journal de Méd. de Bordeaux*, Nos. 42 to 45) adds his protest against the indiscriminate administration of milk in all cases of albuminuria, both on account of its insufficiency as a food for an adult and because it may lead to enfeeblement and to digestive troubles. He advises a more careful consideration of the reasons for giving a milk diet in any given case, and also other therapeutic measures. He advocates, therefore, what he terms the "*régime lacté mixte*"—milk combined with vegetables, fish, fowls, etc. ; whilst game, shell-fish, mollusca, and crustacea are to be avoided. Weak alcoholic drinks are permitted. A pure milk diet is indicated only in acute nephritis and highly albuminous urine. A milk diet is especially injurious in anæmic and enfeebled patients, diabetics, syphilitics, and the tuberculous, and those with gastro-intestinal troubles. He thinks that in large white kidney, the administration of milk favours œdema and fatty infiltration of the liver and kidneys ; these cases do best, he

thinks, on a meat diet, digitalis, strychnine, massage. With uræmic symptoms milk should be given only in the mixed form, and decreased if it does not seem to agree.

### 5. Diet in Bright's disease.

Ralfe (*Trans. Med. Soc., Lond.*, vol. xvii.), in a paper read before the Medical Society in March, 1894, thus sums up the general results :—It may be said that the effect of a milk diet in Bright's disease is, in *acute* cases, to increase the quantity of urine, the amount of solids, the urea, and to diminish the quantity of albumen, all which is reversed when a more stimulating diet is resumed. In the *chronic* cases, however, the effect on the urinary water is not so marked ; but, on the other hand, both solids and urea are decidedly lessened. The amount of albumen was certainly lessened by the milk diet in cases in which a strongly-acting left ventricle and tense pulse were noted ; whilst with a failing heart and rigid vessels very little change occurred, and the albumen actually increased under the milk diet, though whether this increase was not due to the progress of the disease may be questioned, since the increase continued after the resumption of middle diet. An exclusive milk diet was certainly badly borne by the chronic cases. They speedily tired of it, became feeble and languid, and uræmic tendencies increased ; but, on the other hand, a notable diminution of the frequency and tension of the pulse took place. This alteration in the force of the circulation no doubt explains the diminution of the urinary solids and increase of uræmic symptoms in these patients. For with the resumption of a more stimulating diet the symptoms disappear as the tension of the pulse rises ; they also then experience a sense of well-being quite distinct from their previous *malaise*. In seeking an explanation for the different actions of a milk diet in acute cases as compared with chronic ones, the following facts should be borne in mind : That in acute cases the tissues of the body are presumably healthy—at all events, have not been long clogged with excretory products—and the process of metabolism goes on fairly well, whilst cardiac vascular changes are not advanced. Uræmia and dropsy, when they occur, are caused rather by the local obstruction in the kidneys than by failure of the circulation or by defective action of metabolism in the tissues. In chronic nephritis the reverse obtains, and we find that so long as the circulation maintains its vigour uræmia seldom occurs. But whilst we recognise the fact that a milk diet increases the tendency towards uræmia, we must not ignore the value it possesses in reducing the tension of the pulse in cases in which we have a strongly-acting left ventricle, high tension, and atheromatous

arteries—patients in whom a full diet would probably very shortly induce cerebral hæmorrhage. The effect of a meat diet to increase tension of the pulse is so well known that it is not necessary to enter into details; but two cases in which the resumption of animal diet was evidently the cause of fatal cerebral hæmorrhage must be mentioned. A patient about fifty years of age, with rigid vessels and tense pulse, after being on milk diet, wearied of it to such an extent that she was placed on fish. Not content with this, she requested to be allowed meat, and was permitted a small chop a day. The next day she expressed herself feeling very much better. There was, however, a great increase of the pulse tension; the day after, fatal cerebral hæmorrhage occurred. The second instance was a patient in town, a gentleman of forty-eight, with advanced renal disease and a pulse of very high tension. He was ordered a milk diet, but as he soon tired of it he was allowed some other light food in addition, under the care of Dr. Embleton, of Bournemouth, who found him very intractable in the matter of diet. On three several occasions hæmorrhage had followed his taking a more stimulating food than that ordered for him. In dealing, therefore, with the question of diet in chronic Bright's disease, we are brought face to face with two dangers of an opposite character—the one from *uræmia*, the result of too low a diet; the other from *hæmorrhage*, the consequence of too stimulating a one. Fortunately, between milk on the one hand and meat on the other, we have a number of intermediary articles of food, such as fish, poultry, game, green vegetables, fruit, and farinaceous materials, which, judiciously employed, can be arranged so as to form a dietary not too stimulating, especially when administered only in small quantities at a time. To sum up: the result of these observations seems to point to the conclusion that in **acute nephritis** an absolute milk diet is followed by beneficial results, and may even lead to the patient's recovery if persevered with, its effect on the urine being to increase the elimination of the solid matters and of urea, and to decrease the amount of albumen; whilst in **chronic nephritis** we find a milk diet usually followed by a decrease in the urinary solids and of urea, and consequently an increased tendency to uræmic troubles. On the other hand, anything approaching a *full* or too stimulating a diet increases the tension of the pulse, which adds to the risk to be apprehended from cerebral hæmorrhage. In these cases, when the tension is high, a milk diet may be useful for a time to reduce the vascular action, but its effect should be carefully watched. Should a more stimulating diet be required, as in cases with failing heart and degenerating vessels,



then here, again, great circumspection must be used in the choice of articles, their effect on the pulse closely estimated, and only small quantities given at a time.

#### **6. Abuse of milk in the treatment of albuminuria.**

Lecorché and Talamon (*Bl. f. klinische Hydrotherapie*, Dec., 1893), while fully admitting the use of an exclusive milk diet, maintain that each case must be judged on its own merits. They throw doubt on the view that milk can provide sufficient nutriment for an adult. To preserve the balance of tissue change, they urge that an adult would require about seven pints of milk daily—a quantity that experience has shown cannot be tolerated without producing digestive disturbances quite opposed to any expected benefits. They believe, therefore, that a strict milk diet is justifiable only where an excessive diuresis is required—that is, in acute nephritis, or in acute exacerbations of chronic inflammatory disease; but this mode of treatment must not be carried too far, and, after a week or two, the ordinary diet must be resumed.

#### **7. Influence of food in the production of nephritis.**

Penzoldt (*Berlin. klin. Wochenschr.*, No. 40, 1893), being struck by the fact that renal inflammation is produced by alcohol, ergot, etc., was led to examine the urine of patients in his out-patient room, and found that, in the spring, many people suffer from albuminuria, when radishes are in season, which quickly disappears when the use of this vegetable is stopped. A medical student took experimentally 100 pieces of asparagus: though no cells were found previously, immediately afterwards, cystic and renal epithelium appeared, though without albumen. In another case the ingestion of seven radishes caused white blood corpuscles to appear in abundance. Large quantities of green tea produced numerous leucocytes and renal epithelium, and coffee led to some red blood-cells. Penzoldt asks: Is this a physiological albuminuria, or the commencement of a chronic renal affection, which develops from the persistence of the irritation? A most careful and persistent examination of the sediment should be made in all cases of urines in which even a trace of albumen is discovered, which do not yield to rest in bed and careful dieting.

### **IV.—TREATMENT OF DIABETES.**

#### **8. Dietetic treatment of diabetes.**

Pavy (Croonian Lectures, *Lancet*, vol. ii. 1894) considers that the precise condition existing in each particular case of

diabetes requires to be taken into account in order that the plan of treatment may rest upon a rational basis. The fault to be dealt with in diabetes is impairment, of very varying degree in different instances, of the power of properly disposing of carbo-hydrate matter within the system. In health, the carbo-hydrate matter ingested becomes disposed of before the opportunity is afforded of its reaching, as such, the general circulation. The contents of the general circulation thus escape being influenced by the presence of carbo-hydrates in the food. Becoming locked up in proteid matter, which Pavy has found to possess a glucoside constitution, or being transformed into fat by the protoplasmic agency of the cells of the villi and of the liver, their entry into the general circulation and subsequent escape with the urine are prevented. Failing to be thus disposed of, they reach the general circulation, and thence the urine, in the form of sugar. A deviation from the natural state is in this way induced throughout the system, which stands in proportion to the amount of sugar that is allowed to enter the general circulation. It is upon this that the symptoms of diabetes depend; and, with its removal, by stopping or diminishing the supply of carbo-hydrate food which cannot be checked from improperly reaching the general circulation, the symptoms immediately subside. The great aim in treatment is to restore the protoplasmic or assimilative power through the agency of which the carbo-hydrates of the food are synthesised into proteid and transformed into fat, instead of being permitted to pass into the system in the state of carbo-hydrate. For promoting the recovery of this power a natural state of system as regards freedom from improper presence of sugar constitutes an important, if not an essential, condition. The progress noticed in cases before measures of treatment are resorted to, shows that when sugar is freely passing through and being discharged from the system the disease more or less rapidly grows in severity. On subsequently preventing the unnatural passage of sugar through the system by recourse to the appropriate restriction of diet, it is found that instances are of frequent occurrence where the assimilative power at fault not only ceases to undergo further diminution, but gradually becomes raised so as to admit in the course of time of a certain amount of carbo-hydrate food being taken without giving rise to the escape of sugar with the urine. In proportion as the power of properly disposing of carbo-hydrate matter becomes restored, a more liberal diet is found not only to be tolerated but to be required. It is a striking circumstance that, whilst at the beginning of treatment in a favourably

progressing case the restricted diabetic diet leads to gain of weight and improvement in every way, later, when a recovery of assimilative power has taken place, a continuance of the restricted diet is attended with a fall of weight and decline of strength, leading the patient to think that a relapse has occurred. The urine under the circumstances continuing free from sugar, the loss of weight may be taken as a guide in treatment. It may be read as indicating that with the restoration of assimilative power, carbo-hydrate matter becomes wanted, and should be supplied in proportion to the extent to which the power of properly disposing of it has been regained. Directly this is done an increase of body-weight follows, and as long as the urine is kept free from sugar, by guardedly advancing and not proceeding sufficiently far to overstep the mark, a perfectly satisfactory state of health continues. With no loss of weight upon the restricted diet, experience justifies the statement that the conclusion may be arrived at that assimilative power has not been restored to permit, as in the other instance, of the administration of carbo-hydrate food, without leading to the reappearance of sugar in the urine. Here, however, no cause for concern exists so long as the urine can be kept free from sugar, for the maintenance of body-weight shows that the restricted diet is proving adequate to meet the requirements of life. To give carbo-hydrate food purposely in any case where sugar is present in the urine is contrary to reason. The fact of sugar being eliminated affords proof that more carbo-hydrate matter is reaching the system than can be properly dealt with, and to add to this will simply have the effect of intensifying the wrong condition already existing. The rational procedure as regards dietetic management in diabetes is to endeavour to keep the urine free from sugar, and whilst doing this not to carry restriction further than is necessary for the purpose.

### **9. Diet in the treatment of diabetes.**

Saundby (*Lancet*, vol. i. p. 893, 1894), at the Eleventh International Congress of Medicine at Rome, directed attention to the question of diet in diabetes. It has long been held as a fundamental rule that diabetic patients should be allowed as little carbo-hydrates as possible. He proposed that in future we should reverse this, and declare that diabetics should be permitted to eat as much carbo-hydrates as they can assimilate without increasing their sugar excretion. His manner of proceeding is to determine the excretion of sugar in each individual when placed upon a diet from which all starch, sugar, etc., have been excluded, and then, taking this figure as the standard, to permit gradually the use of



small quantities of potato, lævulose, and toast, as careful analysis of the urine proves that each successive addition does no harm.

He has found that the majority of patients can take a moderate amount of carbo-hydrates without injury, and he maintained that this method is very much better for the patient, and affords a *régime* which it is possible for him to conform to.

### **10. Bread for diabetics.**

Kochler (*Med. News*, April 7, 1894) gives the formula for the preparation of a useful bread for diabetics. It is made by mixing 1lb. of gluten flour with  $1\frac{1}{2}$ lb. of fine shorts. Add four cups of warm water and 1 yeast cake. Make a thin batter, salt to taste, and allow to rise over-night. Then make the batter stiff by working in more shorts, roll it out and add more gluten flour according to the whiteness desired. Place the mass behind the oven till it rise cracked and split, then place it in the oven, where it should bake one hour. Besides being cheap and palatable, it digests well. [Of course it is important to see that the gluten flour is as pure as possible.]

### **11. Bread substitutes in diabetes.**

Saundby (*Birmingham Med. Review*, No. 72, p. 275, 1893), on account of gluten flour containing, even in the very best samples, at least 30 per cent. of starch, and also by reason of its expensiveness and unpalatability, has almost abandoned its use. Nevertheless there are many cases of diabetes in which it is necessary to cut off all possible supply of starch, as well as sugar, and for this he now advises the use of Clark's starchless biscuits. He also advocates the use of almond cakes, which can be prepared at a moderate cost and for which he gives the recipe, and the use of Iceland moss for the preparation of puddings. It should be well soaked in water for three hours, then boiled in milk for three-quarters of an hour, strained, sweetened with saccharin or glycerine, poured into a mould, and allowed to cool. [It also makes an excellent thickening for soups.] Saundby also mentions Professor Ebstein's recent introduction of *aleurinat*, which is a patent name for a gluten flour (*vide* "Year-Book," 1893) obtained as a by-product in a starch factory, and sold very cheaply.

### **12. Lævulose as a diabetic food.**

Haycraft (*Zeitsch. für physiologische Chemie*, Bd. xix., Heft 2, 1894), as the result of observations of diabetic cases and experiments on animals, has come to the conclusion that patients suffering from chronic diabetes can utilise 50 grammes and more of lævulose daily; and that in some acute cases a part of the lævulose

taken with the food is excreted as such, a part utilised in the body, and a part transformed into glucose (*vide* "Year-Book," 1894, p. 144, § 6, Minkowski's experiments). In rabbits glycogen is formed from lævulose, and is stored up in the liver.

**Hale White** (*Guy's Hospital Reports*, vol. i., 1893) reports that if large quantities of lævulose be given, some of it passes into the urine, whilst there is evidence that some of the lævulose was retained and used up in the body. None of the patients felt worse for taking lævulose; indeed, some felt better, and increased in weight. As, therefore, the evidence showed that lævulose can be utilised better than dextrose, and that, *per contra*, there is nothing to show that dextrose can be utilised better than lævulose, probably a moderate amount of dahlia tubers, taken as vegetable by diabetic women, do no harm.

### 13. Lemonade for diabetics.

The following (*Journal des Praticiens*, May, 1894) formula is given for the preparation of a lemonade grateful to diabetics who crave for a sweet drink:—

R	Acidi citrici ...	...	...	...	gr. lxxv.
	Glycerini puri ...	...	...	...	5 vj.
	Aquæ puræ ...	...	...	...	O. ip.

### 14. Guaiacol in diabetes and polyuria.

**Clemens** (*Wien. med. Presse*, No. 5, 1894) administers 3-6-10 drops of pure guaiacol in a tablespoonful of milk, or, if tolerated, in cod-liver oil, three times a day. In order exactly to determine its influence, he ordered no special diet. The results were, that after about eight days the urine showed very considerable reductions of sugar; in some, sugar was present in only small quantities; in others, it had disappeared. After an administration of three or four weeks, some sweet foods could be administered, without increasing the amount of sugar in the urine. But the most striking effect observed was in the reduction of the associated polyuria. This in some cases was reduced to one-half within a period of eight days of the administration of the drug. The general condition improved in all cases, and the remedy was well tolerated.

### 15. Treatment of diabetes in its advanced form.

**K. Grube** (*Lancet*, vol. ii., 1893) states that in his opinion it is a mistake to treat the patients too one-sidedly, and to think the chief part of the treatment is to exclude the taking of carbohydrates. The importance of the treatment is not to exclude the carbo-hydrates carefully, but to induce the patient's system to utilise them again. Grube points out, that in advanced cases

diabetic coma, when imminent, can be warded off by giving carbohydrates. [In the "Year-Book," 1893, it was pointed out that in enfeebled diabetics a too rigidly restricted diet often led to the occurrence of diabetic coma from the poisoning produced by the excess of proteid toxins, which the debilitated state of the patient rendered it impossible to assimilate.]

### **16. On albuminuria and diabetes mellitus.**

Jacobson (*Gazette des Hôpitaux*, August, 1894) states that two forms of albuminuria in diabetics occur, one mild, the other severe. The mild form is usually latent unless discovered by examination of the urine; the amount of albumen is always small, and is not accompanied by symptoms of nephritis. It may remain always slight, or pass into the severe type. This, though it may be latent, is more frequently indicated by symptoms of Bright's disease. This albuminuria usually appears at a late date, but sometimes at an early stage. After marked albuminuria has once been established it rarely subsides. As a rule, the amounts of sugar and albumen bear no relation to each other; but occasionally, as the albuminuria increases, the sugar diminishes. The substitution of albumen for sugar is usually of serious omen. Jacobson discusses the pathological conditions which cause the grave form of albuminuria to appear in diabetes. It is in the diabetes with obesity that it is most frequently met with. With regard to prognosis, the grave form is a serious complication, since the dietetic treatment cannot be employed. In treating these cases, the maintenance of the patient's strength is more important than the mere loss of sugar and albumen. In the grave forms, neither the milk diet for Bright's disease nor the strictly proteid diet for diabetes should be employed. A mixed diet must be adopted; alcohol must be strictly forbidden. The author speaks of the iodides and phosphates of lime as useful, and opium, belladonna, and antipyrin have been employed.

## **V.—OTHER MORBID STATES OF THE URINE.**

### **17. Dysuria:**

Ralfe (*International Clinics*, vol. ii., series 4, 1894) deals fully with those conditions leading to dysuria, other than those arising from surgical lesions, or diseases of the viscera affecting the bladder, such as uterine tumours, pelvic disorders, etc., which are likely to come under the physician. These he groups under the following heads:—1. Alterations in the quality of the urine. 2. Morbid changes in the genito-urinary tract (not purely surgical). 3. Disturbances of innervation. The successful treatment of



dysuria must, therefore, depend on our right determination of the cause that produces it. To take the more simple forms, those depending on alterations of the quality of the urine: For *acidity* of the urine, with or without uric acid or uratic deposits, the mere directing the patient to drink three ounces of distilled water every two hours is often sufficient. In *phosphaturia*, consequent on alkaline urine, the administration of mineral acids with strychnine is indicated; but in more severe cases with excessive elimination of the earthy phosphates, opium is called for. In *oxaluria* mineral acids and a meat diet give most relief. The dysuria arising from *gouty cystitis*, or urethritis, must be treated on the same lines as that caused by excessive acidity, viz., the injection of three or four pints of soft water daily. The diet should be slightly nitrogenous, and the bowels carefully regulated. The *pyuria* which attends this condition, and is often persistent, is best treated by injections of silver nitrate. It is probable, as in *gouty conjunctivitis*, that the mucous membrane of the bladder becomes the seat of excessive purulent secretion, without any great degree of hyperæmia. In the chronic urethritis of females injections of nitrate of silver have alone proved serviceable. *Spasm of the bladder*, the result of reflex irritations, can be effectually dealt with only by opium. This condition, which is generally associated with grave renal mischief, often is simply caused by direct irritation by oxaluria. With regard to *dysuria senilis* (Harnscharfe der Greise) there appears to be a failure not only of the vesical muscles but also of innervation, whilst in the acute form there appears to be at least a failure in the aqueous secretion of the urine. For this condition little can be done, but some temporary benefit often follows the administration of 20-drop doses of dilute nitric acid; apparently by increasing the quantity of urine. In the chronic forms the best results follow on complete and systematic catheterisation, combined with medical treatment in the form of perchloride of iron, strychnine, and belladonna; while massage over the hypochondriac region, and the use of the faradic current, are useful adjuncts. Acute cystitis must be treated on general principles—leeches to the perineum, poultices and fomentation, and antimonial salines. It is interesting to observe the efficiency of henbane as a sedative for all painful affections of the urinary tract, since it has only a feeble action on the bronchial mucous surface, and apparently none on the gastro-intestinal. As the cystitis passes into the chronic stage the benzoates should be given combined with buchu, uva ursi, etc.; to guard against a relapse Contrexéville water and balsamic remedies, of which sandalwood oil is the best, should

be employed. Should much atony result, then perchloride of iron and strychnine must be given. In the cystitis with *ammoniacal urine*, if the kidneys are not extensively affected, the one remedy is *salol*. After administering the drug in 20-grain doses thrice daily, Ralfe has often found the urine to resume its normal acid reaction, the only evidence of recent cystitis being the presence of pus. Failing *salol*, *boracic acid* is the next best remedy, though certainly not to be compared with the former. For irrigation of the bladder in this condition, Ralfe advises that at first a dilute solution of citric acid (10 grains to a pint) should be injected, and when discharged the bladder should be slowly filled with a solution containing some disinfecting agent, such as eucalyptus, *salol*, or *boracic acid*. Or, as **Sir William Roberts** has suggested, a solution of *bynin* may be injected with a view of setting up lactic acid for ammoniacal fermentation.

### 18. *Copaiba* as a diuretic.

**Bronowski** (*Lyon Méd.*, No. 46, 1893) from a series of cases has found the administration of 5 grammes of *copaiba* in an emulsion most efficacious as a diuretic in cases of hepatic cirrhosis. The diuresis was most marked on the third or fourth day; no signs of renal irritation were ever detected.

### 19. Is *asparagus* a diuretic?

**Wilks** (*Lancet*, April 28, 1894) writes that in spite of books declaring *asparagus* to be a diuretic, he had observed the very contrary to be its action. This produced a reply from **Burney Yeo** (*Lancet*, June 2) defending the view that *asparagus* is a diuretic, stating that in his work on "Food" he had said that *asparagus* contained a peculiar crystalline principle, "*asparagin*," which possessed diuretic properties, and that he was not disposed to admit that this statement was an error or one the reverse of truth. **Eager** (*Lancet*, June 16, 1894) thinks there may be a fallacy on both sides of the question. Thus he finds after the ingestion of a large quantity of *asparagus* the urine is always reduced in quantity and high-coloured for some hours afterwards, but that, later, a larger flow than usual occurs, of more watery character and quite pale in colour.

[In the "Year Book," 1892, p. 174, § 20, the question of the diuretic action of *asparagus* was fully discussed. We may observe, however, that the discrepancy of opinion with regard to the action of *asparagus* is due to the fact that increased frequency of micturition has been mistaken for increased diuresis. The general opinion is that after partaking largely of *asparagus* the first effect was to increase micturition, with uncomfortable feelings of irritation in the perineum but no increase in the

quantity of urine passed, whilst the secretion was of a darkish tinge and highly characteristic. We also remarked that this was specially noticed when the large white variety was partaken of. The green variety has not such a marked effect, and it is probable that the yellow crystalline substance which Professor Nencki has isolated, and which gives the characteristic odour of methyl mercaptan, resides chiefly in the stalk, whilst the glucoside asparagin may be found chiefly in the green portion. Thus the stalk may have an inhibiting action, and the green a diuretic action. This is the more probable since Dr. George Harley records an instance of temporary glycosuria, resulting from excessive indulgence in asparagus salad, which we know is generally made from the green variety. The practical lesson is that though the dietetic use of asparagus ordinarily may be permitted to ordinary invalids, still the inhibiting effects often noticed would forbid its use in cases of granular and contracted kidney.]

## 20. Piperazine as a solvent.

Bohland (*Therapeutische Monatshefte*, No. 5, 1894) has published results which tend to prove that piperazine has no effect upon concretions of uric acid formed in the bladder or pelvis of the kidney, either in dissolving them or preventing their increase. With regard to its effect as a remedy in gout, see "Gout, Rheumatism, and Rheumatoid Arthritis," p. 157.

[Allowing that a solution of piperazine in a test tube has a solvent action on uric acid, the conditions are quite different from those which exist in the pelvis of the kidney. There, to have the slightest effect, the urine must be highly and continuously charged with the drug, whilst the solvent action is limited to the few seconds the urinary secretion is passing from the urinary tubules over the concretion into the bladder. Consequently, to have only a moderate effect the urine must be kept constantly saturated with piperazine; and last year ("Year-Book," 1894, p. 151, § 17) we expressed an opinion, which has since been strengthened, that piperazine may in large doses cause albuminuria. At all events, the conditions are very different from allowing a piece of uric acid concretion to remain for some time in a test-tube in the presence of a strong solution of piperazine.]

## 21. Paroxysmal hæmoglobinuria.

Davenport Parry (*Aust. Med. Gaz.*, March, 1894), in a case of hæmoglobinuria, having read a paper by Dr. Haig, describing all attacks of this disease as coincident with excess of uric acid in the urine, placed the patient on full doses of sodium salicylate, with the result that the attack was much abridged.



## 22. Hæmatoporphyrinuria and sulphonal.

Priestley (*Med. Chronicle*, Sept., 1894) sums up the conclusions he has arrived at from the consideration of thirteen cases in which hæmatoporphyrin was found in the urine:—(1) That it occurs both in health and disease, and that it may persist for a long time without affecting the general health of the patient; but (2) its appearance is sometimes associated with extreme exhaustion, often fatal. In fatal cases the patients were all women of a neuropathic type. (3) That whilst in many cases the symptoms developed spontaneously, or at least independently of any adequate cause, still in a remarkable majority of the cases the patients were taking *sulphonal* at the time the symptoms set in. Before connecting *sulphonal* with the development of the symptoms of hæmatoporphyrinuria, Priestley thinks the following facts ought to be taken into consideration—(a) that though men and women equally take *sulphonal*, it is women only who seem to suffer from the disorder; (b) the symptoms, too, have never been known to follow a genuine overdose, but only in cases of moderate administration; (c) the mere cessation of the administration of *sulphonal* does sometimes, but not generally, cause a discontinuance of the symptoms; the same may be said with regard to its re-administration. Priestley, therefore, considers the argument connecting hæmatoporphyrinuria with the administration of *sulphonal* as inconclusive. Still, no doubt it has some effect in certain susceptible people. He therefore advises that, when using the drug, after a week's administration it should be dropped for half a week, whilst the urine should be frequently tested spectroscopically for hæmatoporphyrin in all neuropathic cases.

## 23. Phosphaturia.

Thorndike, of Boston (*Practitioner*, Mar., 1894), in a thoughtful and exhaustive contribution, after dealing with cases that had come under his own observation of the disorder of nutrition generally characterised by the term “phosphaturia,” and fully dealing with the views advanced by Willis, Tessier, and Ralfe, sums up our general knowledge of the conditions which are commonly included under the above term as follows:—(1) The less important class of cases of digestive or nervous origin, in which the phosphatic cloud in the urine is merely an indication of a lack of acidity in the urine, which in its turn is usually traceable to some derangement of the stomach and duodenum or to some temporary nervous cause. These cases have no right to the name “phosphaturia,” are usually of comparatively short duration, and are cured by the treatment of the local cause and

the consequent improvement of the general condition of the patient, which may closely simulate the condition we commonly speak of as diabetes insipidus, and which should probably be classed as cases of this disease. The fact that some such cases are associated with an increased elimination of phosphoric acid in the urine does not at present furnish sufficient evidence to justify our making a definite clinical condition of it and calling it phosphaturia, phosphatic diabetes, or anything else. The term "phosphaturia," then, although perfectly proper in a chemical sense, as descriptive of a urine which habitually contains too much phosphatic acid, has in the writer's belief no clinical significance, in so far as there is no well-marked set of symptoms constantly occurring as an accompaniment of this sort of urine. (2) The rare cases of severe type and long duration which closely simulate the condition we commonly speak of as diabetes insipidus, and to which Tessier gave the name phosphatic diabetes, probably because the condition occurs occasionally in a case of true sugar diabetes.

These cases are so very uncommon, and present such variable groups of symptoms when they do occur, that it seems scarcely worth while to give the name "phosphaturia" to any definite clinical condition; although, used as descriptive of these rare cases when the urine habitually contains too much phosphoric acid, the term "phosphaturia" is a perfectly proper one.

#### **24. Bilharzia hæmatobia.**

**Sonsino** (*Lancet*, Sept. 9, 1893) contributes the following results of his observations on the life-history of this parasite:—That its development differs from the typical one of the digenetic trematodes as represented by *Fasciola hepatica*. (1) Its life-history is less complicated than that of the digenetic trematodes; it requires an intermediate host, and undergoes a metamorphosis, but there is no alteration of, nor asexual, generation. (2) In this way it resembles in its life-history the holostomes rather than the distomes. (3) The intermediate host is a small crustacean. (4) The free embryo, which swims actively about, on encountering the crustacean attacks the latter at a vulnerable point, and, by means of the papilla at its head, bores and forces its way into the body of this animal, after having rid itself of its covering of cilia. Having effected an entrance, it proceeds to encyst itself. (5) The part of the crustacean in which the bilharzia cysts are most frequently located is that corresponding to the first segment near the eye. (6) The encysted larva, being transferred from the crustacean in drinking-water to the human stomach, is then set at liberty; afterwards, penetrating the

intestinal walls, it arrives in the portal vein, where presumably it completes its development.

## VI.—MISCELLANEOUS ABSTRACTS.

Short references may be made to contributions not treating directly on therapeutics, but having a collateral bearing.

### **25. Suppression of urine for twelve days : recovery.**

J. W. Ross (*New York Med. Record*, vol. ii., p. 815, 1894) records a case of a boy, aged ten, who had an attack of pyrexia, of malarial type. He secreted no urine, and the bladder was always empty. After twelve days he passed a pint of urine of low specific gravity, and made a temporary recovery. However, he died of acute nephritis some three years afterwards. In the *Lancet*, vol. ii., p. 688, 1893, a case is recorded of suppression of urine by Fraser and Parkin, in which a woman, aged seventy-four, after some obscure febrile attacks, found her urine becoming irregular as to quantity, and then diminishing greatly; she was then sick, and she complained of pain in the left loin. No enlargement could be felt. The bladder contained only half an ounce of urine. The left kidney was incised, when 6 ounces of urine came away. No obstructions could be felt in the ureter. The patient recovered; the sinus of the left kidney being established from which urine was secreted; the diagnosis arrived at being absence of the right kidney and kinking of the ureter of the left kidney, at its exit from the pelvis.

### **26. Delicate test for albumen.**

Spiegler (*Brit. Med. Jour.*, Supplement, p. 77, vol. ii., 1893) suggests the following test for albumen:—Perchloride of mercury, 8 grammes; tartaric acid, 4 grammes; sugar, 20 grammes; distilled water, 200 grammes. This fluid ought to have a specific gravity of 1.060, on which the added urine will float. If albumen is present, a zone will form at the junction of the urine with the test fluid. The reaction will develop only in the presence of a chloride.

### **27. Glycosuria and surgery.**

G. B. Smith and H. E. Durham (*Guy's Hospital Reports*, vol. xlix., p. 335) contribute an exhaustive paper on the various conditions in which the presence of sugar in the urine affects surgical procedures. They distinguish between those cases in which the sugar is antecedent, and those in which it appears after the surgical operation, as if apparently caused by it (refer also to "Year-Book," 1894, p. 154, § 21, No. 2).



## 28. Renal tumours and their removal.

**Bland Sutton** (*Clinical Journal*, vol. iii., No. 1), in view of the indiscriminate removal of renal growths, finds it necessary to seek for an answer to two important questions: (1) Is it possible to foretell the nature of a solid renal tumour? (2) Will its removal prolong the life of the patient? With this view tumours must be grouped under the following heads: 1. *Sarcomata*, true renal sarcomata with spindle cells: nephrectomy is usually attended with high mortality, and in successful cases life is rarely protracted beyond a year; in adrenal tumours or accessory adrenal tumours, surgical procedure is more encouraging. 2. *Papilloma* attended with severe frequent hæmaturia: the successful removal of such a growth has been recorded. 3. *Adenoma*: Sutton thinks "congenital cystic kidney" may be included under this term; it is generally bilateral, and nephrectomy in advanced stages will be rarely resorted to. 4. *Carcinoma*: most common between the ages of forty and sixty; usually unilateral, and invades chiefly the pelvis and ureter. In the removal of solid renal growths, the tumour should be exposed through a small incision in the ilio-costal space; and the posterior surface detached by means of the finger from the capsule, and then an incision made in the linea semilunaris directly over the tumour.

## 29. Nephritis from sewer air poisoning.

**Vachell and Patterson** (*Lancet*, March 3, 1894) record four cases in which, after a most exhaustive, in other directions exclusive, examination, attribute an outbreak of acute nephritis to the emanations from a street-sewer ventilator. In the "Year-Book," 1894, p. 157, § 21, No. 10, attention was drawn to what was considered by Fiessinger, who recorded it, as an epidemic of Bright's disease, to which none of the known causes could be assigned. Micro-organisms were demonstrated in two cases, once in the urine and once in the sputum.

## 30. Peptonuria.

**Robitschek** (*Zeitschrift f. klin. Med.*, vol. xxiv., Nos. 5, 6, 1894), under the supervision of von Jaksch, sums up the chief points of our knowledge concerning peptonuria. Thus, in diseased states, it is only of minor importance, for it appears in the most varied forms of disease, and also in different stages of the same disease, without its having any clinical differential value, but in some, as in meningitis and acute rheumatism, it is of distinct aid to diagnosis and prognosis. Regarding the frequency of the occurrence of peptonuria, and also that its nature and significance have as yet been so little investigated, it is to be desired that future inquiries should not be limited to the laboratory, but that

clinical investigation should be undertaken into the toxigenic and bacteriogenic forms that lead to the appearance of peptones in urine.

### **31. Diabetes mellitus and hepatic cirrhosis.**

Palma (*Berl. klin. Woch.*, No. 34, 1893), in a contribution in which he gives an account of two cases in which both these conditions were observed together, remarks that whilst both these disorders are not infrequent, their concurrent appearance is rare. Writers on both disorders have failed to associate the one with the other. Hepatic disease cannot be regarded as a cause of diabetes, nor does diabetes give rise to hepatic affections. When both occur together, the coincidence is quite fortuitous.

# GOUT, RHEUMATISM, AND RHEUMATOID ARTHRITIS.

BY ARCHIBALD E. GARROD, M.A., M.D., F.R.C.P.

*Assistant Physician to the Hospital for Sick Children, and to the West London Hospital; Physician to the Alexandra Hospital for Children with Hip-Disease.*

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## 1. Chemical pathology of Gout.

The most important contribution to the Pathology of Gout made during the past year is that of **L. Vogel** (*Zeitschrift f. klinische Medicin*, xxiv., p. 512), which embodies the results of an exceptionally complete study of three cases of the disease from a chemical point of view.

The patients were males, aged forty, fifty-three, and thirty-seven respectively, all of whom had suffered from repeated attacks of genuine articular gout. None of them had albuminuria nor exhibited the cardio-vascular changes of renal disease, but the daily excretion of urine was somewhat excessive. The phenomena studied were the albuminous metabolism, the food absorption and the excretion of uric acid and other nitrogenous constituents of the urine.

The constitution of the food, as far as its nitrogen, fat, and carbo-hydrates were concerned, was ascertained by weighing and by analysis, and in this way the daily intake of nitrogen was determined within the limits of experimental error. The nitrogenous output was determined both in the urine and the faeces. In the first case the observations extended over a period of twenty-four days, during which the body-weight remained constant. In a first period, from June 13th to 17th, the nitrogenous output was less than the intake by 13·10 grammes, or 2·62 grammes daily. During a second period, from June 18th to 23rd, piperazine, a drug rich in nitrogen, was administered, and during this period the daily retention amounted to 3·55 grammes. In a healthy man piperazine was found to have no important restraining effect upon nitrogen elimination, and it was therefore concluded that the increased retention was due to the disease.



During a third period, from June 24th to July 6th, the swelling of the joints had entirely disappeared, but some pain remained.

In the second case similar determinations of the total nitrogen of the food, urine and fæces were made over a period of twenty-four days, and in the third case during two periods of eleven and ten days respectively.

The study of the three cases led to the following results:—

In each case a period of marked retention of nitrogen was observed, and this was not explained by any variation of diet or nutrition. Sometimes the observations coincided with, and sometimes they followed, an acute exacerbation of the chronic gouty troubles from which the patients suffered.

After taking piperazine the nitrogen retention was in two cases much increased. In each case there occurred a later period during which an almost complete nitrogenous balance was established, or at any rate the retention was no greater than in healthy persons.

In one case, however, there was a period during which the excretion of nitrogen decidedly exceeded the intake, and this Vogel ascribes to an idiosyncrasy of the patient. The actual amount of the nitrogen deficit in the excreta was subject to remarkable fluctuations, and this fact seems to indicate that in gouty people the amount of nitrogen in the urine does not reflect the amount of proteid destruction as it does in healthy individuals, the fluctuations being rather attributable to the storage or free elimination of the nitrogenous products of proteid metabolism. This view receives support from the remarkable resemblance between the phenomena observed in these patients and in those who suffer from renal disease, and it was on this account that any signs of granular kidney were carefully sought for in the cases studied. Vogel considers that it must be left to further investigations to decide whether the observed abnormalities are due to the gouty state as such, or whether they are determined by some undiagnosable renal lesion.

It is not probable that the nitrogen is retained in the form of undestroyed proteid, nor can it be as uric acid, since the quantities retained are too large.

As in renal cases also, there was a decidedly excessive amount of nitrogen in the fæces, but the proportion of the fat taken which appeared in the fæces was the same as in healthy people.

The uric acid excretion was in the first case practically within normal limits, except during the time when piperazine was given. The same was the case with the second patient, but the daily

variations exceeded the normal range. In both cases the relation of uric acid to total nitrogen excreted was unduly high, but this was attributed rather to nitrogen retention than to excess of uric acid.

In Case 3 there were fresh inflammatory troubles at the commencement of the observations, which gradually passed away, and at the same time the excretion of uric acid increased from a subnormal to a normal or even excessive amount, and as the nitrogen excretion rose much more slowly, there was an undue excretion of uric acid in proportion to the total nitrogen.

Of the other nitrogenous products, the relative value of ammonia was normal, and the relative amount of urea was within normal limits. It was found that in gout, in association with a diminution of urea, other nitrogenous products, such as uric acid, kreatinin and xanthin may be excreted in excess.

Liddell of Harrogate (*Lancet*, ii., 1893, p. 93) gives a short account of a series of estimations of uric acid in the urine of a gouty patient, in the course of which an acute attack of gout in the little finger developed. On the day when the attack commenced, the excretion of uric acid was less than on the two preceding days, the determinations showing a fall from 0.615 grm. to 0.493 grm. At the same time the amount of urine fell from 705 to 525 c.c. The determinations were made by Haycraft's method.

## 2. Unusual cases of gout.

Sir Dyce Duckworth (*Clinical Soc. Trans.*, 1893, p. 68) records a case of gout in a youth of eighteen, of feeble development, but with no family history of the disease. The presence of tophi in the ears confirmed the diagnosis of gout.

T. D. Pryce (*Ibid.*, p. 70) narrates the case of a gouty man, aged seventy-three, who exhibited uratic deposits upon the conjunctivæ of both eyes. In both these cases the nature of the deposits was placed beyond doubt by the fact that they yielded the murexide reaction.

Sir James Grant (*New York Med. Record*, 1894, vol. xlv., p. 609) gives examples of pneumonia and of perityphlitis, apparently of gouty origin, and followed immediately by articular attacks.

## 3. Enlargement of lymphatic glands in gout.

J. B. Berkhart (*Lancet*, 1893, ii., 1497), in a paper entitled "A Contribution to the Diagnosis of Gout," states that, although the classical treatises on the subject contain no references to gouty affections of the lymphatic glands, he has found that in all cases of arthritis which are shown to be truly gouty by the

presence of tophi, the regional glands are abnormally and persistently enlarged, being sometimes painful, and always tender on pressure. *Post mortem* he has found the glands of a dark reddish-brown colour, and very firm. The increased size was obviously due to a hyperplasia of the tissue of the hilum, which had caused atrophy of the follicular strands, and had greatly encroached upon the cortical nodules. He ascribes to this glandular affection considerable diagnostic value, although it may be present in other conditions, such as gonorrhœa, arthritis, and myeloma, which may simulate gout more or less closely.

#### **4. Relation of suppurative gingivitis to gout.**

E. C. Kirk (*Lancet*, 1894, i., p. 1614) calls renewed attention to the connection between suppurative gingivitis, otherwise known as Rigg's disease, with gout. He quotes the researches of C. N. Peirce, of Philadelphia, who stated that the calcareous material on the roots of teeth lost from this cause contains, in addition to calcium phosphate and carbonate, uric acid in the form of the urates of sodium and calcium. Kirk found much benefit result from constitutional treatment in this disease. Lithium carbonate was much more effectual than the citrate, producing marked diuretic, and in some instances laxative, effects, especially when given in 5-grain doses, before breakfast. In the cases in which he has administered this drug, the gingivitis has always been practically cured, at any rate for the time.

#### **5. Gout in its surgical aspects.**

Sir W. Savory, in an interesting lecture (*Lancet*, 1894, i., p. 75), discusses gout in its relation to surgery. The conditions dealt with include contraction of the palmar fascia, with the consequent flexion of the fingers, the connection of this condition with gout being strongly insisted upon. The tophi, also, which are characteristic of the disease, may lead to the formation of a so-called gouty ulcer, which may call for surgical interference, and they may require to be removed. They may be dealt with as tumours, and dissected out, or may be scraped away; but in either case, the resulting wound is often not disposed to heal very readily. In gouty patients, the brittleness of ligaments, tendons, etc., which in its slighter forms is merely a senile change, is much intensified, and rupture of extensor tendons is more liable to occur in them than in non-gouty subjects.

After speaking of gouty eczema, he passes on to speak of gouty phlebitis, characterised by its sudden onset, the intensity of the pain and tenderness, its rapid disappearance, and tendency to metastasis. Further, gouty cystitis, acute and chronic, is dealt



with : it often shows itself as a simple irritability of the bladder, but in its more chronic form it is a very obstinate affection.

Turning to its pathology, Savory compares gout in the system to smoke in a furnace, indicating imperfect combustion. He believes that the classical articular attacks are less common than they used to be, whereas the abarticular manifestations of the disease seem to be more common. He ascribes this change in type to changes in modes of life and in diet, and in the form in which alcohol is taken ; for although to gouty people all alcohol is harmful, some forms of alcoholic drinks are certainly more injurious than others.

#### **6. Treatment of gout.**

**F. Grimm** (*Deutsche med. Woch.*, 1893, xix., pp. 395 and 423) strongly recommends calomel in the treatment of acute and subacute gout. He administers the drug in doses sufficient to produce a strong peristalsis at the outset, and gives it only for a very short time. He holds that a course of calomel is a mistake in such cases, and that it is much better to give a few fairly large doses than many small ones. The dose given will of course vary with the individual. He regards it as immaterial whether gouty patients take acids or alkalies, as long as they are not given in poisonous doses.

#### **7. Diet.**

**Emil Pfeiffer**, of Wiesbaden, recently laid down a number of rules for the diet of the gouty which, according to the prevailing notions, were extremely heterodox. He urged that proteids should form the staple articles of diet, in the forms of meat and eggs ; that carbo-hydrates, and above all, starch and sugar, should be rigorously avoided. He claimed that by means of such a diet, the urea and uric acid formation are restricted, and that the fluids of the body are thereby rendered as alkaline as possible.

**Mordhurst**, also of Wiesbaden (*Verhandlungen des Cong. f. innere Medicin*, xii., 1893, p. 495), combats Pfeiffer's arguments step by step, and shows that the researches of others have proved that when much flesh is taken, much uric, sulphuric, and phosphoric acids are formed, and carried into the blood, whereby its alkalinity is lowered ; that more hydrochloric acid is formed for the digestion of meat than of carbo-hydrates. The urine of carnivora is always acid, whereas that of herbivorous animals is always neutral or alkaline, affording an indication of the degree of alkalinity of the blood. He holds that the physician who orders a diet rich in meat for a gouty patient is playing directly into the hands of the disease, and that the dietary which is based upon the general experience of centuries is after all the right one ;

since by such a diet the formation of large amounts of uric acid is prevented, and diminished quantities of phosphoric and sulphuric acid are carried into the body-fluids, two actions which almost do away with the tendency to the deposition of urates.

### 8. Piperazine.

Biezenal (*Berl. klin. Woch.*, 1893, p. 805) confirms the statement of Meisels (*Ungar. Archiv f. Med.*, 1893), that the administration of piperazine to birds hinders or prevents the formation of the uratic deposits which are otherwise almost invariably formed when neutral potassium chromate is subcutaneously injected. Lithium carbonate, borax and sodium phosphate, have not this power.

K. Bohland (*Therap. Monatshefte*, 1894, viii., p. 200) remarks that the reports are conflicting as to the value of piperazine as a remedy in gouty cases. He regards the treatment of gout by its means as purely empirical, since any good effect that piperazine has cannot be referred to its power of dissolving uric acid, for there is no evidence that this drug has the property of causing the removal and excretion of the urates deposited in the tissues. The experiments, not open to any objections, that have hitherto been made on this point, seem to show that it has no such power. Some experiments which he has made seem to show that the daily excretion of urine is not altered in amount by the administration of piperazine, but that its acidity is somewhat lowered. The excretion of uric acid was not increased in a case of leucocythæmia in which the drug was given. He quotes the observations of Levison (*Die Harnsäurediathese*, Berlin, 1893), who failed to find any increase of uric acid excretion in a gouty subject under its use.

Wittzsch, on the other hand (*Münchener med. Woch.*, 1893, p. 531), describes a distinctly increased excretion of uric acid in the case of an elderly woman suffering from arthritis (uratica) deformans, but he only employed Heintz's method for the estimation of the uric acid, and Bohland questions the gouty nature of the case. [Certainly from Wittzsch's account one would look upon it as one of simple rheumatoid arthritis.] (See also in this connection the observations of L. Vogel, *supra*, p. 152.)

### 9. Treatment of rheumatism.

The list of new anti-rheumatic drugs, most of which contain the salicylic radicle, still grows apace; but of the large number of such substances which have of late years been tested and more or less warmly recommended, none has succeeded in taking the place of salicylate of sodium, which still holds its own. This year we have also to notice some new methods of administering salicylic acid and sodium salicylate themselves. Thus Bourget, of

Lausanne (*Therapeutische Monats.*, 1893, p. 531), states that salicylic acid applied to the skin is readily absorbed. The absorption is greater in young than in old people, and in fair than in dark subjects. The absorption is largely dependent upon the vehicle employed, being much favoured when the vehicle is a fatty substance, and very feeble or absent if the fat is replaced by vaseline or glycerine. Bourget further states that in women the absorption is greater than in men, and moderately fat persons absorb salicylic acid more readily than those who are very thin. The absorption is to some extent affected by the locality over which the drug is applied, being freest in the neighbourhood of the large joints, and especially of the knees. He recommends the combination of external and internal salicylic treatment in cases of acute rheumatism, claiming for the external treatment that it brings about a very rapid cessation of the pain, disappearance of the swelling, and subsidence of the fever. He recommends that in rheumatic cases the neighbourhood of the affected joints should be smeared with a salicylic ointment and then wrapped in a flannel bandage. In the course of his experiments the urine of the patients was examined, and the amounts of salicylic acid recovered from that excretion were estimated.

Replying to Bourget, **Ruel**, of Geneva (*Revue Méd. de la Suisse Rom.*, 1893, xiii., p. 484), points out that the method of treatment advocated by him has been in use in Geneva for some six years with excellent results. He prefers an alcoholic solution of salicylic acid mixed with twice its volume of castor-oil. This is applied by means of compresses, covered with some impervious substance, which are renewed night and morning. Castor-oil alone among fatty oils dissolves salicylic acid readily. If the compresses are well applied, salicylic acid may be detected in the patient's urine about twenty minutes after they are put on.

**J. J. Erlanger** (*Deutsch. Archiv f. klin. Med.*, vol. li., 1893, p. 303), after referring to the difficulties sometimes—or, as he says, often—met with in giving sodium salicylate by the mouth in cases of acute rheumatism, owing to the occurrence of anorexia, nausea, or vomiting, describes the results of an experimental research made by him on the administration of the drug *per rectum*. He found that, if the bowel is first washed out and a properly composed enema is rightly administered, the drug is absorbed in sufficient quantities, appearing in the urine rather less quickly than when given by the mouth. The method to be adopted is as follows:—The bowel having been washed out, the medicated enema is given, lukewarm, and consisting of 6 to 8 grammes of sodium salicylate and 1·5 grm. of tincture of opium



in 100 c.cm. of water. An ordinary syringe with a soft india-rubber tube should be used, the tube being introduced for a distance of about 20 centimetres into the bowel. It is important first to warn the patient that the enema is intended to be retained.

### **Asaprol.**

Dujardin-Beaumetz (*Bull. Gén. de Thérapeutique*, cxxvi., 1894, p. 1), discussing the more recent treatments of acute rheumatism, comes to the conclusion that sodium salicylate is the best of the salicylic drugs. He suggests its administration *per rectum*, since it is more rapidly absorbed when so given, and appears in the urine after a shorter interval than when given by the mouth. [This statement is opposed to that of Erlanger, quoted above.] He believes that the risk of the implication of the heart is greatly diminished by salicylic treatment. Some patients, however, are very intolerant of salicylate, and this drug should be avoided when renal disease is present. Since it produces uterine contractions, it should also be given very cautiously to pregnant women. Antipyrin acts best in cases where there are merely rheumatic pains and in muscular rheumatism. In acute cases it is not so useful, and its administration in large doses is apt to be attended with serious inconveniences. Exalgine has still more serious drawbacks, and should always be used with caution. He strongly recommends *asaprol* as an anti-rheumatic drug. This name is given to the calcium salt of  $\beta$ -naphthol sulphonic acid. It is a pinkish-white powder, odourless, and with a sweetish taste. It is very soluble in water and in alcohol, is antiseptic, and has little toxic property. The urine of patients taking this drug gives a dull blue colour with perchloride of iron. *Asaprol* may be given in doses of 3–10 grammes daily, the ordinary dose being 4–6 grammes. It produces no dyspepsia or nervous symptoms, nor does it cause any eruption or buzzing in the ears. Its effects are equal or even superior to those of the salicylates, and it may be given safely when renal complications are present.

**Salophen** (*see* "Year-Book," 1894, p. 168, § 16) has been further tried by Osswald (*Deutsche med. Woch.*, 1893, p. 46), who gave it in doses of 8 grammes in the twenty-four hours. He found it to be less effectual than sodium salicylate, but that it produced no unpleasant after-effects. Edmund Koch (*Deutsche med. Woch.*, 1893, No. 18) speaks much more highly of its value as an anti-rheumatic drug.

Hardenberg (*N. Y. Med. Record*, 1893, xliv., p. 141) quotes the results obtained with salophen in ten cases of acute rheumatism. He gave it in 15-grain doses six or eight times in twenty-four

hours. No after-effects were observed even with much larger doses than ordinary, and one boy, aged sixteen, took no less than 270 grains in thirty-six hours. The average febrile period after the treatment was started was  $6\frac{1}{9}$  days, and the average stay in hospital was less than ten days.

**Malakin** is nearly allied to phenacetin, being a compound of parphenetidin with salicyl-aldehyde. It is obtained in the form of small needles of a yellow colour, which melt at  $92^{\circ}$  C. It is insoluble in water, but fairly soluble in hot alcohol. It dissolves in a solution of sodium hydrate. This new drug has been tried by **A. Jaquet** (*Correspondenz-Blatt f. Schweizer Aerzte*, 1893, xxiii., p. 609) in fourteen cases of acute rheumatism, and had a rapid and powerful effect in every case. No unpleasant after-effects, beyond sweating in some instances, were observed. It is a slow and mild antipyretic, and is also useful for neuralgia and headache.

**Agathin**, recommended by Rosenbaum as an anti-rheumatic drug has been found by **Ilberg** (*Deutsche med. Woch.*, 1893, p. 119) to be unreliable, and its after-effects render its use undesirable.

**Tolysal** is the salicylate of tolypyrin, and differs from that of antipyrin (salipyrin) in the replacement of an atom of hydrogen in the benzene radicle by methyl. It has been given by **A. Hening** (*Deutsche med. Woch.*, 1893, p. 193) in doses of 3 to 6 grammes at intervals of half to one hour, and is said by him to be a remarkably sure remedy in acute rheumatism. Smaller doses should be taken for some time after the larger ones have been discontinued. This drug is very cheap, and has no unpleasant after-effects.

**Tolypyrin** itself has been found by **P. Guttman** (*Berl. klin. Woch.*, 1893, p. 249) to have marked antipyretic and anti-rheumatic properties, comparable to those of antipyrin, whilst it is much less expensive than that drug.

### 10. Rheumatoid arthritis.

**R. Massolongo** (*Riforma Medica*, 1893, vol. ii., p. 159) is one of those who hold that rheumatoid arthritis is a malady of trophic, or rather of dystrophic origin. In favour of this view, which now has numerous adherents both in England and on the Continent, he adduces, in addition to the resemblance of the joint lesions of rheumatoid arthritis to those met with in such nervous diseases as locomotor ataxia and syringomyelia, the occurrence of muscular atrophy, which he describes as occurring in regions far from the affected joints. He further maintains that the electrical reactions, and especially the reaction of degeneration which is

undoubtedly sometimes obtained in the atrophied muscles, point to a central cause producing simultaneously the arthritis and atrophy, rather than to the dependence of the muscular changes upon the articular lesions. Like previous observers, he has met with muscular spasm, and increased myotatic irritability in a number of cases, but increase of reflexes is an accompaniment of all forms of arthritic muscular atrophy. Other points upon which Massolongo lays stress are the occurrence of vertebral scoliosis in 35 per cent. of his cases, the frequency of cutaneous dystrophies, and of sensory disturbances. He mentions the changes found by Pitres and Vaillard in peripheral nerves in rheumatoid arthritis, and also refers to changes in the anterior cornua observed by Klippel.

Lloyd Davies (*Lancet*, 1893, vol. ii., p. 928) records a case of rheumatoid arthritis in a girl six years of age, who was under treatment in the Devonshire Hospital at Buxton. The child had measles at the age of four, followed by acute rheumatism. Shortly after this there was a return of articular troubles, and many joints became affected. There was a fusiform enlargement of the finger-joints and wrists, with grating on movement. The elbows and wrists were much swollen, and showed signs of effusion. There was no visceral disease, and the urine was natural. The child improved with cod-liver oil, chemical food, and good nourishment, together with massage and the thermal baths. Davies regarded the case as one of early rheumatoid arthritis, with synovial swelling and effusion, but with as yet no enlargement of bones. It is seldom that an opportunity is afforded of examining the joints *post mortem* in cases of this kind, but it would be very interesting to know whether such cases as the above are not often due to joint disease simulating, but not really identical with, the rheumatoid arthritis of adults: in other words, whether they exhibit the changes in the cartilages and bones which constitute the sole criterion of that disease.



# INFECTIOUS FEVERS.

BY SIDNEY PHILLIPS, M.D., F.R.C.P.,

*Senior Physician to the London Fever Hospital; Physician to Out-Patients and Lecturer on  
Materia Medica and Therapeutics, St. Mary's Hospital.*

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## I.—DIPHTHERIA.

### **1. Treatment of diphtheria by serum of immunised animals.**

At the Wiesbaden Medical Congress, in 1883, Klebs drew attention to his discovery of a special bacillus in the false membrane of diphtheria.

Loeffler, following up this discovery by observations on thirty-five cases of diphtheria, isolated and made cultures of the bacillus, and by application of these cultures to the excoriated mucous membranes of pigeons, fowls, and rabbits, he produced a deposit of diphtheritic membrane upon these mucous surfaces. These results were published in *Mittheilungen aus dem kaiserl. Gesundheitsamte*, vol. ii., p. 421, 1884. Although these observations went far to show that the bacillus of Klebs is the cause of diphtheria, Loeffler still found difficulties in regarding this as positively established. The chief of these were that (i.) in certain cases which had the appearance of diphtheria he had not found the bacillus of Klebs; (ii.) he found a bacillus much resembling, if not identical with, the bacillus of Klebs in the mouths of some healthy children; (iii.) he had failed by his cultures in inoculated animals to get paralysis such as is characteristic of diphtheria.

The investigation was taken up and continued by Roux and Yersin at the Pasteur Institute, and in its *Annales* for 1888, 1889, 1890, and 1894 are published the results of their work. They found, as Loeffler had done, that the bacillus of Klebs existed in the membrane in a certain proportion only of cases which had been diagnosed as diphtheria: thus Roux found that of 448 cases admitted into the Hôpital des Enfants Malades about three-fourths yielded the bacillus, and one-fourth failed to do so. Chaillu and Martin found in the clinic of Jules Simon that of 299 cases admitted for diphtheria the bacillus was present in about five-sixths, and absent in about one-sixth, and later experience in

one of the metropolitan fever hospitals shows that in about one-fourth to one-third of the cases diagnosed as diphtheria and sent in for that disease, the membrane does not contain the bacillus of Klebs.

It would at first sight appear, therefore, that the bacillus of Klebs is not an essential factor in the production of diphtheria. But further investigation showed that the presence or absence of the bacillus from the membrane corresponded with marked differences in the clinical course and results of the cases, and that cases where the bacillus did not exist in the false membrane were not true diphtheria at all.

Thus of seventy-seven cases of membranous "angina" or sore throat examined by Chaillu and Martin, in all of which the bacillus existed, thirty-six died—a mortality of 46·5 per cent., while of twenty-nine cases in which the bacillus was not present none died. And of 158 cases of membranous sore throat, including laryngeal cases in which the bacillus was found, eighty-four died—a mortality of 53·1 per cent., while of forty-one cases of *apparently* the same nature, but in which the bacillus was not to be found, seven only died—a mortality of 17 per cent. (and even these seven cases probably died from contracting real diphtheria from the patients in the diphtheria ward into which their resemblance to diphtheria had led to their being admitted). So, too, of Roux's eighty cases of laryngeal false membrane, in sixty-one the bacillus was present and thirty of these died, while the nineteen in which the bacillus was absent all recovered.

Other observations show that the grave constitutional disturbances of heart and respiration and the paralytic phenomena of true diphtheria are limited to cases in which the bacillus of Klebs is to be found in the false membrane. The numerous investigations which have now been made into this subject all tend to show that the cases of membranous disease of the air-passages which become dangerous to life (apart from the mechanical danger of obstruction of the larynx by membrane, whether specific or not), and which are accompanied by paralysis, are the cases which give cultivations of the bacillus of Klebs, and that the cases in which there is no evidence of this bacillus nearly all recover under ordinary conditions.

It cannot be too strongly insisted upon therefore that the sole means of accurate diagnosis of true diphtheria from affections simulating it is a bacillary examination of the false membrane. Chaillu and Martin have shown, and the large number of cases, admitted for diphtheria, which are not diphtheria, into hospitals here and abroad, testify that the mere naked-eye appearances of

the membrane, or its extent, or the presence of glandular enlargement, or of high temperature, or all of these together, must not be taken as evidence that the disease is true diphtheria, and the prognosis in these cases depends not upon the initial severity of the symptoms, but upon the presence or absence of the bacillus in the deposited membrane.

One difficulty which Loeffler had felt in connecting diphtheria with Klebs's bacillus, while it failed to be found in cases apparently diphtheritic, thus ceased to exist when it was proved that there were essential clinical differences between the cases of true diphtheria, in which the bacillus was present, and in the cases simulating diphtheria from which it was absent.

Secondly, as has been already said, Loeffler found a bacillus, resembling that of Klebs, in the mouths of some healthy children. Roux confirmed this observation; but though the similarity is great, the introduction of the organisms into serum serves at once to distinguish between the two organisms, for the bacilli found in the mucous membranes of healthy children grow and form colonies very much more slowly and less abundantly than the bacillus of Klebs: their cultivations fail to produce diphtheria in inoculated animals, and they are but sparsely scattered in the mucous membrane, while those of Klebs are found in great abundance in cases of diphtheria. And while, as Roux points out, their exact relationship with the Klebs bacillus cannot be stated, they cannot be mistaken for this bacillus by an experienced observer.

Thirdly, Loeffler had not satisfied himself that cultivations of the bacillus were productive of paralysis in inoculated animals, but Roux found that if the cultivations were used in an attenuated form so that the animals, though rendered diphtheritic, should survive long enough, paralysis ensued when the cultivations were introduced subcutaneously or by intravenous injections. Pigeons in which the paralysis occurred lost the power of standing up, and in rabbits the paralysis attacked the hind or fore limbs and the muscles of the neck, and gave rise in some cases to sudden death, as occurs in human subjects from diphtheritic paralysis.

The difficulties therefore which Loeffler had pointed out, in admitting the bacillus of Klebs as the cause of diphtheria, were removed by the investigations just described, for they showed, first, that the cases of membranous throats without this organism were not cases of true diphtheria; secondly, that the organisms found in some healthy children's mouths were not identical with Klebs's bacillus; and thirdly, that paralysis exactly similar to diphtheritic paralysis in man was producible by injection into living animals of cultures of the Klebs bacillus.



Roux thus dispelled the doubts which had been raised by Loeffler as to the importance of his own and Klebs's discoveries, and established the fact that **the bacillus of Klebs is the cause of diphtheria.**

It should be said that in some cases the bacillus of Klebs is found associated with streptococci, and in these cases there is a great tendency to broncho-pneumonia, and to grave complications. Martin and Chaillu found that in cases of diphtheritic angina associated with the streptococcus, the mortality is as much as 87 per cent., and Roux arrived at almost the same result.

As regards the characters of the bacillus of Klebs, it may be briefly stated here that in order to isolate it, a small particle of false membrane of diphtheria is removed by a platinum wire and placed on the surface of the serum in a test-tube, which is then kept in an incubator twenty-four hours at a temperature of 35° to 37° C. Colonies of the bacillus will then be found in the serum and can be identified by the microscope if properly stained. In order to make cultivations the bacilli may be placed in veal broth or bouillon. The bacillus is about the length and rather thicker than the bacillus of tubercle; in recent cultivations it readily stains by methyl violet or Gram's blue, the staining especially affecting the rounded ends; its fresh cultivations in veal broth are alkaline, soon become acid, and then again alkaline. Cultures will keep a long time; even after thirteen months they were found active if kept away from light. Sun or damp soon destroys the power of the bacillus, but the dried virus resists a temperature of 98° and preserves its vitality and power of producing the disease for a long time—certainly for months—an important point in the causation of the disease. The cultures if applied to excoriated mucous surfaces will produce diphtheritic membrane, with enlargement of lymphatic glands and subsequent symptoms of illness resembling diphtheria in man, and the latter symptoms are also produced by subcutaneous injections of the cultivations, or still more readily by its intravenous injections.

Further investigations by Roux showed that while *the bacillus is never absent from the membrane in diphtheria, it is never to be found in the blood or viscera of diphtheritic patients dead or alive*, nor in the blood or viscera of animals that have been inoculated with cultures; from which it appears that it is not the bacillus itself which directly produces the constitutional symptoms and effects of diphtheria.

In accordance with this fact is the further fact that when all

traces of the organism have been removed by filtration from the cultures, the clear filtrate when injected into animals produces exactly the same symptoms—dyspnœa, enlarged glands, fever, paralysis and death, or, in large doses, diarrhœa, convulsions, and death in six hours—as the unfiltered cultivations containing the bacillus itself.

These facts—(1) That the bacillus of Klebs is never absent from diphtheritic membrane; (2) that it is never found in the blood or viscera of patients with diphtheria; and (3) that cultivations of the bacillus filtered off from the bacillus itself will if introduced into the blood produce diphtheria—conclusively prove that **though the bacillus itself is the cause of diphtheria, the constitutional effects of diphtheria result from the entry into the blood not of the bacillus but of a toxic substance produced by it.** The toxic substance produced by the bacillus has been obtained by Roux from the cultures. He found that it is probably a diastatic substance; that if exposed to air it loses its power, but under favourable conditions may be preserved for at least six months; that acids, whether developed spontaneously in the cultivations or added to them, diminish its power; that it is soluble in water but insoluble in alcohol; that it has no power of dissolving up fibrin, and that it is but slowly diffusible; the last an important point, as it would otherwise pass more rapidly than it does from the false membrane into the circulation.

A knowledge of the nature and origin of the diphtheritic poison having thus been acquired, the next important step towards its employment in the treatment of the disease was made by Behring. He found that as is the case in certain other diseases, the introduction into the blood of animals of the poison of diphtheria in small and repeated doses would gradually render them immune against the disease. He inoculated into goats attenuated cultures of the diphtheria bacillus in progressively increasing doses; the effects of the injections became less and less marked, and finally none were produced except a little local induration at the seat of injection. These goats were thus rendered immune against the diphtheritic poison, and this immunity was due, as Behring showed, to the presence in the blood serum of a substance (to which the name **antitoxin** has been given) which could antagonise and in the right proportion neutralise the effects of the diphtheria virus. This he proved by adding the blood serum from immunised animals to cultures of the diphtheritic bacillus. On injecting the mixture into non-immune animals no diphtheria or other effect was produced,

whereas when the diphtheritic cultures, without addition of immunised serum, were injected, the animals died at once; or, if the dose employed was smaller, more slowly, with symptoms of diphtheritic character, whence it was presumable that the antitoxin which would thus neutralise the diphtheria virus in the lower animals might be made protective and curative to human beings, protecting individuals exposed to the contagion of the disease, and annulling or mitigating the effects of the poison in persons who had already contracted it.

Behring's first results on the treatment of patients by antitoxin were sufficiently encouraging to lead to the treatment being tried by others. The first serum had been obtained by Behring by immunising goats. Roux has since obtained it from horses, choosing these animals as they tolerate the immunising process well, and readily yield a large quantity of serum from the jugular veins. The process of rendering the horses immune is similar to that in goats. The pure toxin is injected beneath the skin, the dose being gradually increased till 20 or 30 cubic centimetres are injected two or three times a week. Each injection produces a little local swelling, with a rise of temperature for a day or two, without affecting the animal's health. After a short time even the pyrexia ceases to be produced, and much stronger doses of the toxin cause only a fleeting rise of temperature, and the animals in about three months become entirely unaffected by the introduction of the virus.

Before using the serum on diphtheritic children, its effect was tested on guinea-pigs, in whom diphtheria had already been produced. The result was that the membrane rapidly shrivelled up, and the animals recovered, while other guinea-pigs with diphtheria and not treated by the serum quickly died.

The treatment by antitoxin, whether derived from goats or from horses, has now been extensively tried. The first cases were recorded by Behring in the *Deutsche med. Woch.*, May 27, 1893. Of thirty cases subjected to the treatment, twenty-four recovered and six died.

**Ehrlich, Kossel, and Wassermann** (*Deutsche med. Woch.*, April 9, 1894) treated with antitoxin 220 children suffering from diphtheria. Of the total 220 cases 67 were tracheotomy cases, and the mortality among these was 44·9 per cent., but of the remaining 153 the mortality was only 23·6 per cent. With reference to these figures it must be added that in one-half the fatal cases the disease was so far advanced as to make recovery out of the question; that only one injection was performed on each child, owing to the insufficient supply of serum, whereas



subsequent experience has shown that succeeding injections are required in most cases, and that many of the cases were not treated by the antitoxin till the disease had existed for some days. There is little doubt that but for these facts the mortality would have been much lower than it was. What was made clear was that *the treatment is successful in proportion as it is commenced early in the disease*. Thus, of six treated from the first day none died; of sixty-six treated from the second day only two died; while in cases in which treatment did not begin till the third day the mortality rose to 53·5 per cent. **Werbger** recorded sixty-five cases treated in Hahn's Clinic in Berlin (*Deutsche med. Woch.*, July 19, 1894): 44 per cent. of the tracheotomised cases recovered, and 72 per cent. of the others, but the epidemic was a mild one. **Katz** treated 128 cases in Baginsky's Clinic at Berlin; whereas the mortality in 1,167 cases previously treated without antitoxin was 39·3 per cent., the mortality under the antitoxin treatment was only 13·2 per cent.

**Roux's** experience of the antitoxin treatment was given in a paper read before the International Congress of Hygiene, held at Budapest in August, 1894. The children treated were inmates of the diphtheria pavilion in the Hôpital des Enfants Malades in Paris, and the observations were made in the period from the 1st February to the 24th July, 1894. All the cases that came in the ward were treated, and, except for the antitoxin, no change was made in the management of the children. Four hundred and forty-eight children came into the ward; 128 of these had no bacillus of Klebs in the membrane; they had, therefore, no diphtheria, and would probably recover in any case. Of the 320 cases with true diphtheria, 20 died immediately on entry into the hospital and before antitoxin could be injected; there remained 300 cases of true diphtheria, which were treated by antitoxin. Of these, 222 recovered and 78 died, a mortality of only 26 per cent.

The mortality in the same hospital for 1890, 1891, 1892, 1893, was 51·7 per cent.; this included many cases not true diphtheria, but for which the mortality would have been much higher. The mortality in the Trousseau Hospital in Paris, where the children were not treated by antitoxin during the same period, February to July, 1894, was 60 per cent.

Whether we compare the mortality by the antitoxin treatment in the Hôpital des Enfants Malades of 26 per cent. with the 51·7 per cent. mortality in the same hospital before the antitoxin treatment, or with the mortality in the Trousseau

Hospital of 60 per cent., the results afford most encouraging evidence of the success of the treatment.

During the last few months many cases have been recorded in the English journals to illustrate the effects of the antitoxin treatment. No bacterial examination of the membrane was made in most of these cases; and as Behring's method is directed to the treatment only of cases in which the bacillus of Klebs exists, cases in which its presence is not ascertained can scarcely claim to be taken as proof for or against the treatment. Such cases would include some which were not true diphtheria, and in which the mortality is always very small, and would unduly favour the apparent effects of antitoxin. One case is reported in which the patient died, and the reporter of the case expresses surprise that the antitoxin had no effect; but the antitoxin in this case was not used *till the 28th day* of the disease; the most superficial reference to the literature of the mode of treatment would have shown that it has never been claimed for antitoxin that it can revive moribund tissue, or restore vitality to organs already destroyed by four weeks of diphtheritic poisoning. And in other cases the antitoxin treatment was only commenced when the disease had existed three or more days. Such cases cannot be regarded as evidence against the claims made for the antitoxin treatment. In three cases recorded by Eastes of Folkestone, and in one case each by Still, Forth, and Roué, the presence of the bacillus of Klebs was determined; all these cases recovered.

In the experience of the writer of this article at St. Mary's and the London Fever Hospitals, the treatment has certainly appeared successful. In two cases the patients were in an almost hopeless stage of the disease when they came into the hospital; on them the antitoxin appeared to exercise a favourable temporary influence, though both died. In several others recovery ensued, where, judging from previous experience without antitoxin, recovery seemed most unlikely. In one case where pharyngeal membrane was rapidly disappearing under the antitoxin injection, the child was seized with urgent dyspnoea from membrane in the larynx. Had not antitoxin been at hand tracheotomy would have been performed; but in the hope of averting this necessity, an injection of antitoxin was administered, and the laryngeal symptoms passed gradually away with expulsion of the membrane, and the child recovered. In another tracheotomised case, the pulse ran up to over 180 with approximation of cardiac sounds; such a condition, as the writer pointed out in the *Brit. Med. Journ.*, 1888, is always one fraught with imminent danger. Under antitoxin,

however, the pulse soon lowered, and the patient recovered. In four successive cases in which tracheotomy was done in young children, and which were then treated by antitoxin, their progress was unusually favourable and all recovered. So far, then, there is a very general testimony, statistical and otherwise, from those who have observed the effect of the antitoxin treatment, that it reduces the danger of mortality from diphtheria very materially.

## **2. Details of the treatment and its effects.**

The injection should be made with a syringe into the subcutaneous cellular tissue; it may be made into the buttock, or side of the abdominal wall, or chest. It may produce a little redness, which passes off in 24 to 48 hours. In three cases, abscess formed at the point of puncture, which soon healed on being opened. No other bad results have been observed, but not infrequently urticarial or erythematous rashes have been noticed; also pains in the joints, in one case severe. The quantity of fluid injected will vary with the strength of the solution, and with the weight and age of the patient. The antitoxin solution prepared from goats is considerably more powerful than that at present obtained from horses by Roux; that which has been mostly used in England has been Schering's or Aronson's, which is stronger than that used by Roux. The exact strength can be ascertained only by finding how much of the toxin of diphtheria a certain amount of it will neutralise. Roux injected 20 c.c. of the serum from horses into each child, and in cases actually dying most had another injection of 20 or 10 in twenty-four hours afterwards. The quantity injected varied from  $\frac{1}{1000}$  to nearly  $\frac{1}{100}$  of the body-weight.

The effect of the injection has been most fully described by Roux. In successful cases it arrests the further production of membrane, and causes a shrinking, softening, and detachment of membrane already formed. This usually begins to be manifest in about twelve hours; the bacilli, too, become less numerous in the membrane, and multiply less actively in serum. The diminution of the membrane in extent, and its separation, are evidently of essential importance, since it is from the bacillus contained in the membrane that the poison is derived, and they become of additional importance in cases where it is deposited on the larynx, and where in addition to being the source of an absorbable poison, it leads to mechanical obstruction to respiration. Under the influence of the serum the laryngeal dyspnoea and the retraction of the chest lessen, false membrane is expelled from the larynx and air-passages, and the necessity for tracheotomy may frequently be averted. Since the use of the serum, the number of



tracheotomies has already lessened (from fifty to forty per cent. in the Hôpital des Enfants Malades), but as cases are frequently not seen until immediate tracheotomy is demanded to avoid impending suffocation, it is not always possible to defer the operation until antitoxin has had time to relieve the dyspnœa. In some cases, however, intubation may serve to tide over the dyspnœa until the influence of antitoxin has lessened the membranous occlusion of the larynx.

The antitoxin has a marked effect on the temperature, which for the most part falls gradually after the injection. The pulse-rate, too, which is of still greater importance, is also influenced, usually soon becoming slower; and the irregularity sometimes seen in diphtheria becomes less. The general condition of the patient is much improved by the injections. Those cases in which the Klebs bacillus is associated with the streptococcus are, as is well known, of graver import than pure diphtheritic angina. In those complicated cases the serum is less efficacious, and is only effective when injected in strong and repeated doses. In spite of energetic intervention, the disease is of longer duration, the temperature subsides only very gradually, broncho-pneumonia being a formidable complication. Roux found that the mortality in his cases treated by antitoxin, small though it was, was nearly entirely due to cases in which the diphtheritic angina was associated with the streptococcus.

It is claimed for the injections that they diminish the frequency of complications such as pneumonia and paralysis. So far as Roux's and other reports go, this is borne out, and in the cases under the author's observation convalescence has appeared unusually rapid, and no paralysis has been noticed except of the palate. It is the writer's experience, however, that diphtheritic paralysis may show itself long after the period usually stated in the text-books, and that unless the patients are observed for three months after their diphtheria, it is not justifiable to claim that the diphtheria has not given rise to paralysis.

### **3. Antitoxin as a prophylactic.**

Immunity against diphtheria is alleged to be produced by the injections of antitoxin. W. W. Myers, of Philadelphia (*Amer. Therapist*, 1894, ii., 225) inoculated ten persons who had been exposed to the disease. On the second day a small red pimple appeared, which became vesicular about the fifth day, and on about the eighth day pustular. In from twenty-two to twenty-four days the local sore completely dried up. The lymphatic glands in the axilla swelled about the ninth day, and on the eighth day there was headache, pains in loins, and in two cases

vomiting. Several of the inoculated persons complained of a disagreeable taste in the mouth, and in three cases the tonsils were inflamed, but no membrane appeared. **Katz** injected seventy-two children admitted into hospital, and of these only eight were attacked by diphtheria. It cannot be said, seeing that diphtheria patients do not, under good hygienic conditions, commonly infect other persons, that these numbers are convincing as to the prophylactic power of the diphtheria antitoxin, and a very large number of observations would be required before such power could be regarded as proved. At present, as in England the supply is insufficient for the treatment of actual diphtheria, it would seem better to reserve any antitoxin that can be procured for the treatment of persons actually suffering from the disease.

#### **4. Practical deductions.**

1. In every case of suspected diphtheria the membrane should at once be tested by making a cultivation in order to ascertain if diphtheria is present, and in no case should it be taken for granted that a case is diphtheritic without ascertaining the presence of the bacillus, as it is proved impossible to distinguish diphtheritic from non-diphtheritic throats or membrane by any other means, and the success of the treatment depends on its being commenced at the beginning of the disease.

2. In every case of suspected diphtheria an injection of antitoxin should be made. Should the case prove to be diphtheria, no time will have been lost; should it not, no harm will have been done. Where children are admitted into a ward containing cases of diphtheria, the early injection is especially desirable.

3. In many of the earlier-treated cases only one injection was practised. Subsequent experience has shown that it may be advisable to renew the injection on the succeeding day or days. The necessity for this will be indicated by the progress of the case as indicated by the condition of the membrane, the rates of pulse and respiration, the temperature and the general condition of the patient.

4. When there is urgent dyspnœa and indications of obstruction at the larynx, antitoxin should be administered and an attempt should be made to tide over the time till its influence is exerted by intubation so as to avert tracheotomy.

5. Where tracheotomy is absolutely necessary, or performed before antitoxin treatment, there is no reason why antitoxin should not be given with a view to lessening subsequent dangers.

6. The specific bacillus may remain in the mucous membrane after the membrane has disappeared, though how long is not

known, and it is recommended that convalescents should not mix with other children till bacteriological examination has proved the removal of the bacilli. This, however, will probably prove impracticable.

### 5. Summary.

In the membrane of true diphtheria the specific bacillus of Klebs is always found, cultivations of which will produce diphtheria in other animals. In laryngeal diphtheria the danger may arise from mechanical occlusion of the opening of the larynx, as it may from false membrane not diphtheritic; but the constitutional symptoms and dangers of diphtheria arise from the entrance into the blood of a toxic substance originating in the bacillus, which never itself passes into the circulation. Animals can be rendered immune against diphtheria by inoculations with small doses of the virus of diphtheria produced by its bacillus. The blood-serum of these immune animals contains an antitoxin which can neutralise the effects of the diphtheria virus. The antitoxin treatment of diphtheria consists in the injection of the antitoxin to prevent individuals from contracting diphtheria, and, more important still, to annul the symptoms of diphtheria already contracted.

It will have been seen that it is to Klebs that is due the credit of first isolating and describing the bacillus of diphtheria, and to Loeffler that of showing more conclusively the association between the organism and the disease, by his cultivation of the former and production of diphtheria in animals by the cultures; and it is to Roux we owe the making clear of many points at one time obscure, with reference to the identity of true diphtheria and diseases simulating it, the knowledge of the source and nature of the diphtheria poison, and the demonstration on an extensive scale of the effects of the antitoxin treatment. To Behring must be ascribed the first step in the practical treatment of diphtheria by immunising animals; and to the genius of Pasteur, it must not be forgotten, is owing the whole principle of serum therapeutics, of which the antitoxin treatment of diphtheria is but one example.

### 6. Testimony adverse to the antitoxin treatment.

Dr. Hansemann, assistant to Professor Virchow, read a paper before the Berlin Medical Association (Nov. 29, 1894), in which he stated that after a careful investigation of the question he had come to the conclusion (1) That the Klebs-Loeffler bacillus cannot be indisputably recognised as the cause of diphtheria, as it occurs in many other diseases; (2) the serum is not a specific remedy, certain cures not having been demonstrated; (3) the



prophylactic character of the serum has not been proved; (4) the serum is by no means uninjurious to the human body.

Prof. Rosenbach of Breslau, in the *Nation*, has also expressed unfavourable opinions on the treatment, one of his chief objections to it being the danger of inoculation of maladies from the animal from which the serum is taken.

### **7. Treatment of diphtheria by antitoxin from electrolysis.**

Smirnow (*Berl. klin. Woch.*, July 23, 1894, and *Br. Med. Jour., Epit.*) describes his investigations into the treatment of diphtheria by antitoxins not obtained through the agency of immune animals. He first refers to the recent researches into the serum treatment of diphtheria and tetanus. On the ground of the change from toxin to antitoxin being a chemical one, he has endeavoured to induce, by oxidation or reduction processes, properties in the serum of healthy or diseased animals like those possessed by immune animals. Positive results were obtained only by electrolysis. By exposing 100 c.cm. of dog's serum to a current of 120 to 140 milliampères from three to four hours, the author obtained a serum which, when injected into animals, produced a rise of temperature. The change produced in the serum is due to an alteration in the albumen. Many animals were infected with diphtheria, etc., and then treated with this simple electrolysed serum. They all died, however, notwithstanding that a high temperature was produced. The author then took ordinary serum, or its constituents, and inoculated it with diphtheria culture. After some time toxins were produced. A globulin culture was also made, but in this no toxins were developed. The serum or serum-albumen cultures were then electrolysed, and it became evident that the toxins could then be converted into antitoxins. Animals were inoculated with diphtheria, and then treated with the antitoxins thus obtained. Some of the experiments were not successful, but it was thought that a more powerful antitoxin could be obtained. It was found that electrolysis of a bouillon diphtheria culture also converted the toxins into antitoxins. After a certain time a colour reaction is developed in the electrolysed fluid, and at this time the electrolysis should cease. He records some successful experiments where the antitoxins from this electrolysed bouillon were used instead of those from electrolysed serum or serum-albumen. It was found that a single large dose administered subcutaneously was more efficient than divided doses. The antitoxins were harmless to the animals, and preserved their properties for a long time.

### 8. Treatment of diphtheria by pyoktanin.

**Hoering** (*Centralblatt für die gesamt. Therapie*, Jan., 1894) employs a 3 per cent. solution of pyoktanin to mop out the throat as widely as possible two or three times a day; the pyoktanin destroys the bacillus of Loeffler and the toxins produced by it, and he considers it a specific against diphtheria. Besides this substance, the author recommends a gargle composed of lime-water (1 part) and distilled water (2 parts), and the internal administration of salicylate of soda. If necessary, pads of cotton-wool steeped in pyoktanin may be inserted in the nares. Of 600 cases thus treated—some of them grave cases—none died. **Gottlieb** treated five cases by painting them three or four times daily with a 1 per cent. solution of pyoktanin, but with no good result; and he believes that the pyoktanin may even aggravate the local lesion.

### 9. Treatment of diphtheria by petroleum.

**Kostenko** (*Vratch*, No. 50, 1893), in seven consecutive cases of diphtheria, painted the fauces with cotton-wool soaked in pure petroleum, thrice daily. The false membrane disappeared in three days, and the patients rapidly recovered. It does not cause local pain or burning. **Gottlieb** strongly supports **Kostenko's** advocacy of this treatment.

[Petroleum in diphtheria was advocated by Flahaut ("Year-Book," 1894, p. 193), applied with a throat brush every hour or two hours; and in the "Year-Book," 1893, Larcher's advocacy of burnt petroleum by fomentations and gargles is commented upon. It may be remarked that petroleum certainly has a powerful dissolving power upon diphtheritic membrane, which softens and disintegrates when dropped into it.—S. P.]

### 10. Treatment of diphtheria by local applications of liquor ferri perchloridi.

**Frige** (*Therap. Monatshefte*, July, 1894, and *Brit. Med. Journ., Epit.*) applied liquor ferri perchloridi locally, with the result that only one of thirty-seven cases died, while eleven of twenty-one cases treated otherwise by him, during the same epidemic, died. The treatment was associated with the internal administration of chlorate of potash in 3 to 4 per cent. solution. Occasionally the local application of the perchloride produced vomiting.

### 11. Treatment of diphtheria by carbolic acid.

**Branchini** (*Gazz. degli Ospitali*, March, 1894) recommends the application to the neck of the patients of fomentations moistened with a 2 per cent. solution of carbolic acid in lead lotion. The phenol applied in this way is absorbed through the skin, especially in children, and by the mouth through the vapour. In the most serious cases it is recommended also to paint the pharynx with the

following:—Salicylic acid, 3 grammes; absolute alcohol, 20 grammes; resorcin, 2 grammes; glycerine, 10 grammes; two or three times daily. The results have been very satisfactory.

### **12. Treatment of diphtheria by turpentine.**

E. W. Kellogg (*Journ. Amer. Med. Assoc.*, p. 151, 1894) strongly advises frequent large doses of turpentine. Of twenty-six cases thus treated, all involving the larynx, fourteen recovered.

### **13. Treatment of diphtheria by methyl violet.**

Munn (*Pittsburg Med. Rev.*, 1894, No. 8, p. 238) recommends methyl violet as a local application to the throat in diphtheria. The strength of the solution should be about 2 per cent., but as much as 10 per cent. in solution has been employed. By means of a cotton swab it should be applied as freely as possible to the diseased area, and the healthy mucous membrane around it will become stained. Of twenty-six cases in which methyl violet was used, only two died.

### **14. Treatment of diphtheria by papoid.**

Larrabee (*New York Med. Journ.*, lix., 325) advises in infants and very young children the treatment by insufflation of papoid, a very fine and almost impalpable powder being made by triturating one part of powder with two of boric acid or bicarbonate of sodium; in older children he recommends that gargles be used of peroxide of hydrogen alkalised and diluted.

### **15. Treatment of diphtheria by sulphur.**

Bäumler of Freiburg (*Brit. Med. Journ.*, March 3, 1894) supports the treatment of diphtheria by sulphur. He generally uses crude sublimed sulphur powdered, though he thinks that precipitated sulphur would be equally efficacious; he applies it freely to the diseased mucous membrane with a camel's-hair brush three or four times a day, or as often as every hour. From a considerable experience he declares that the sulphur leads rapidly to a detachment of the membrane and general improvement; in the majority of cases two or three applications a day are enough, and it is of course less useful where the deposit of false membrane is out of reach, but the larynx and even the upper part of the trachea may be reached by using a curved insufflator for blowing in the powder. R. Frazer records cases in the *British Medical Journal*, where he had similar success by the local application of sulphur, and "M.R.C.S." in the same publication recommends the internal administration of sulphur in 30-grain doses every three hours, swallowed dry, as it sticks to the throat. [The local application of sulphur in diphtheria was first put forward by Liebermeister in 1885, was revived in 1890 by C.



Smith, and in 1893 again by De Mund (see "Year-Book" for 1891, p. 180, § 23, and 1894, p. 176, § 10).—S. P.]

### **16. Treatment of diphtheria by corrosive sublimate.**

**Moizard** (*Soc. Méd. des Hôpitaux*, July, 1894) applies a solution of corrosive sublimate with a dry tampon twice in twenty-four hours; the child's tongue is kept depressed, and after drying the parts affected with a dry tampon the solution is applied, the strength being 1 in 20 to 1 in 40 in glycerine, according to the age of the patient. In most cases the false membrane goes in three days, but in grave cases not for seven days. Free gargling and washing out of the mouth with other antiseptic solutions is also practised, and he claims a mortality of less than 9 per cent.

## **II.—TYPHOID FEVER.**

### **17. Treatment of typhoid melæna by transfusion.**

**Spillmann** (*Journal des Praticiens*, Jan., 1894) injected into the veins of a patient exsanguined by hæmorrhage from typhoid fever 3 centigrammes of defibrinated human blood: there was temporary amelioration, but the patient succumbed to a fresh hæmorrhage.

### **18. Treatment of typhoid fever by carbonate of guaiacol.**

**F. Hoelscher** (*Allg. med. Centralzeitung*, Nos. 46 and 47, 1893) tried this substance in typhoid fever, basing expectations of success on the known effects of guaiacol on gastro-intestinal troubles.

Carbonate of guaiacol is a carbonic ether of crystallised guaiacol, and in the intestine it breaks up into guaiacol and carbonic acid. Hoelscher gave first in mild cases doses of 15 grammes each morning and evening; the prostration and restlessness rapidly passed off, the diarrhœa soon ceased, and many patients felt so well that they did not find it necessary to remain in bed. He then tried it in severe cases; the pyrexia was not influenced, but when antifebrin was given with it the temperature fell more than with antifebrin alone; the tongue became more moist, the appetite soon improved, and the stools became more formed: often there was constipation after the diarrhœa, and bronchitis was lessened when present; of sixty cases so treated none died. Guaiacol, however, is not entirely innocuous.

**V. Wyss**, of Zürich (*Deutsch. med. Woch.*, Mar. 28, 1894) records the case of a girl of nine years of age who was accidentally given 75 drops of guaiacol. She soon became unconscious, with abolition of corneal reflexes, loss of reaction of the pupils to light, salivation, rapid pulse, vomiting, deadly pallor, the passage

of dark brown urine, fall of temperature to 96°, albuminuria, jaundice, and death on the third day. The autopsy showed gastritis, enteritis, nephritis, and softening of other viscera. Even after 15 drops of guaiacol toxic symptoms may result.

### **19. Treatment of typhoid fever by fuchsin.**

S. Lewaschew, of Kasan, tried this treatment knowing that fuchsin is fatal to typhoid micro-organisms. Fuchsin itself is in no way disagreeable to take, and no toxic effects were noticed even when 15 grammes a day were administered. After the second or third day of treatment, rarely later, the temperature began to fall, the urinary secretion increased, and the general condition of the patient improved. He recommends 1 gramme daily, given in six to twelve separate doses.

### **20. Treatment of typhoid fever by carbolic acid and chloroform combined.**

Surgeon-Colonel Quill (*Brit. Med. Journ.*, 1894, p. 909) treated all the cases of typhoid coming under his care in India by this combination, which he adopted as Werner in 1890 had found that a  $\frac{1}{2}$  per cent. solution of chloroform killed the enteric bacillus, and McIntyre in 1892 had found that carbolic acid also controlled its development. Quill got very gratifying results from this mode of treatment, which he sums up as follows:—(1) A reduction in the duration of the fever; (2) a continuous depression of the height of the temperature; (3) early cleaning of the tongue; (4) almost complete deodorisation of the stools; (5) tympanitis and diarrhœa checked; (6) absence of delirium or stupor; (7) absence of complications; (8) relapses rare; (9) food well assimilated; (10) convalescence rapid.

### **21. Treatment of typhoid fever by bacillary cultures.**

According to Wassermann, the poison associated with the micro-organism of typhoid may be so attenuated in cultures that its inoculation produces but very trifling symptoms in animals otherwise very sensitive to the poison. But these animals are rendered immune against the effects of inoculation with very powerfully toxic cultivations of typhoid bacilli. The immunity is not produced within ten days. Rumpf and E. Fraenkel have tried on a large scale the treatment of typhoid fever by cultures; they make use of the thymus-gland juice as a medium for the culture. Professor Kraus has prepared a liquid for injection from bouillon cultivations, and according to him it is only the bacterial proteids of this liquid that are active. He tried the treatment in twelve cases, but with less encouraging results than Rumpf and Fraenkel.

obtained. The cases were of medium severity, but one patient was alcoholic and fifty years of age. Of the twelve patients two died. The treatment was begun in the middle of the second or in the third week. The autopsies showed that the treatment had failed to kill the typhoid bacilli; and in the cases that recovered the symptoms did not appear to be greatly influenced by the treatment, neither diarrhœa nor eruption, nor enlargement of spleen, being influenced. In three cases the fever was lessened, but in the others this was not the case; the general condition appeared if anything to be better than in patients treated in other ways (*Bulletin de Thérap.*, Aug. 23, 1894).

**E. Fraenkel** (*Deutsche med. Woch.*, No. 11, 1893, and *Centralbl. für innere Med.*, No. 2, 1894) submitted fifty-seven typhoid patients in a hospital at Hamburg to subcutaneous injections of sterilised attenuated cultures of typhoid bacilli; the injections were made into the muscle of the buttocks. The injection was first at  $62^{\circ}$  C., and with  $\frac{1}{2}$  c.c. of bouillon sterilised at a temperature of  $62^{\circ}$  C. On the following day 1 c.c. was injected. The day after this second injection, a shiver and rise of temperature occurred, which were repeated on the second and third days after the injections. After this the temperature gradually descended till it reached a point  $\frac{1}{2}^{\circ}$  C. below its height before the injection. If the temperature rose again, another injection of 2 c.c. was administered.

Again a rise of temperature occurred, with a fall two days later, and this fall was much more pronounced than after the injection of 1 c.c. If the defervescence was not definite, further injections were practised, one on every alternate day, each time increasing the quantity by 1 c.c. With the fall in temperature there were noticed diaphoresis and diuresis.

Patients who had the rash upon them, and who had the spleen enlarged, gave the impression of being convalescent, and the author even noticed the fever to pass away while spots were still on the patient's body. Convalescence was more rapid than in patients not treated in this way. Nevertheless the author did not find that relapses or fatal complications were lessened in frequency.

## **22. Treatment of typhoid fever by perchloride of iron.**

**McNutt**, of San Francisco (*Internat. Med. Magazine*, June, 1894), has for four years treated cases of typhoid fever by internal administration of ten to thirty drops of tinctura ferri perchloridi in glycerine and water. He asserts that it acts beneficially by its astringent and tonic properties on the mucous membrane, and



consequently lessens the tendency to ulceration and to hæmorrhage. It also has a sustaining influence as a "blood food," and is of much use when the tongue is dry and there is much diarrhœa.

### **23. Treatment of typhoid fever by copious drinking of water.**

Maillard (*Revue de Médecine*) publishes the results of this treatment: Free imbibition of water has been advocated by Landouzy for some years, with the view of increasing the arterial tension so as to lessen the accumulation of toxic substances which became dangerous by their accumulation in the blood. Debove, too, has recorded excellent results from this method of treatment.

Maillard was struck by the manner in which the patients at once adopted the treatment, some of them taking as much as sixteen litres of liquid a day; whether in the beginning or the advanced period of their illness they readily followed out the treatment, and even when in a condition of delirium or stupor many litres a day were swallowed.

No doubt the drinking of so much cold fluid must have a certain effect in lowering the temperature, and another result is very quickly to restore the tongue and mouth to their normal moist condition, and the patient's general condition much improves.

The stomach bears the copious drinking very well. In one case vomiting was checked by it. Some persons prefer warm to cold water. The severity of the diarrhœa was never increased by the drinking. The urine showed remarkable changes after about forty-eight hours under the treatment, the quantity of urine becoming greatly increased, and less loaded with urates.

### **24. Treatment of typhoid fever by lactophenin.**

Von Jaksch (*Cent. f. innere Med.*, 1894, No. 11) finds from his experience in eighteen cases of typhoid fever that the drug lowers the temperature and has a powerful sedative action, delirium passing away, and the patients becoming clear in mind. Von Jaksch advises that the lactophenin should be given in doses of  $\frac{1}{2}$  to 1 grain in starch capsules, and as much as 6 grains may be given in each twenty-four hours, the amount given being dependent on the antipyretic and sedative effect produced.

In no case were any unpleasant symptoms produced by the drug except vomiting in one case; in another case the pulse became somewhat irregular. Some of the cases treated were severe ones, with pneumonia or great prostration, but the results were very satisfactory.

## III.—VARIOLA.

**25. Treatment of variola by cocaine.**

Samayoa (*Escuela de Medicina*, and *New York Therap. Review*, Oct. to Dec., 1893) affirms from his experience in the treatment of variola that : (1) Cocaine given at the onset of the malady will completely arrest its development ; (2) If administered after the appearance of the eruption, the latter is rendered much milder ; (3) Sometimes if the cocaine is given from the beginning of the illness the pustules become horny and quickly dry up ; (4) Cocaine prevents suppuration. The dose and mode of administration do not appear in the review.

**26. Treatment of variola by exclusion of certain rays of light.**

Finsen (*Epit. Br. Med. Journ.*, No. 27, 1893) has made some observations on the effect of light on the skin. He referred to the good results obtained by Black and others by the exclusion of daylight in the treatment of small-pox, but argued that as Widmark has shown that it is the ultra-violet rays which have the strong chemical action, it is not necessary to exclude the daylight, but by using red curtains tightly drawn, or red window-panes, the injurious effects of the light can be prevented. The correctness of this hypothesis was proved by Svendsen, of Bergen, who treated four cases of small-pox in unvaccinated patients by covering the windows with thick red woollen curtains. The patients escaped the suppurative stage ; there was no rise of temperature, no œdema. The patients passed from the vesicular stage, which was slightly prolonged, into convalescence, and escaped scarring.

## IV.—WHOOPIING COUGH.

**27. Treatment of whooping cough by perchloride of mercury.**

Rauhtschek (*Therap. Monatsh.*, Ap., 1894) treated seventeen cases by thoroughly saturating a cotton-wool tampon with a .1 per cent. solution of perchloride of mercury, and having introduced this into the mouth, pressed it against the base of the tongue, thus allowing some of the fluid to trickle down over the epiglottis ; he then withdrew the tampon and swabbed the fauces and palate with the solution. This procedure was practised daily, and an improvement was noticed on the third or fourth day ; all the patients were cured or relieved within fourteen days. The author thinks any toxic effects impossible.

## V.—PYREXIA.

**28. Guaiacol as an antipyretic.**

**Carter** (*Br. Med. Journ.*, July 7, 1894) gives his experience on the antipyretic effect of guaiacol locally applied. He finds that guaiacol used locally is a valuable antipyretic, that its diaphoretic action may also be useful in some pyretic conditions, the sweating produced being usually copious; it increases the urinary secretion with the fall of temperature, and the pulse, and respiration-rates decrease at the same time.

It is probable that its effects are due to the absorption of it into the circulation, for it is found in the urine a quarter of an hour after its local application. Its mode of action, if absorbed, is unknown.

Occasionally collapse symptoms followed the antipyretic effect.

The drug is applied liquid, by rubbing it into the axilla, and 20 to 30 m. is the quantity recommended to be thus used. The application produces a good deal of smarting and burning, and, after being applied several successive days, even a little superficial inflammation.



# MEDICAL DISEASES OF CHILDREN.

BY DAWSON WILLIAMS, M.D. LOND.,

*Assistant Physician to the East London Hospital for Children, Shadwell.*

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## **I. Artificial feeding of infants.**

In this department of medicine two subjects have absorbed the greater part of attention—the treatment of diphtheria by the antitoxin serum, and certain questions in connection with the feeding of infants. Increasing experience only serves to show that the diet of an infant is the most important of all the conditions of its environment. Much has been hoped from the introduction of sterilised milk, and much has been, in fact, gained, though less in England than in America and South Germany, where the summer season recurs annually, and the weather is warm for three or four months every year. Sterilised milk is not without its dangers, and **Barlow** has definitely adopted the view that its long-continued use may produce scurvy. On the other hand, it has been shown that much of the milk called sterilised, and produced by domestic methods, is not sterile.

The other subject to which reference has been made—the treatment of diphtheria by antitoxin—is discussed in its general applications by Dr. Sidney Phillips in the Article on “Infectious Fevers,” and in its surgical aspects by Mr. Edmund Owen in the Article on the “Surgical Diseases of Children.”

At the meeting of the German Naturalists' Society at Vienna in September, Professor Escherich, with an enthusiasm and confidence which after so many disappointments were really charming, introduced **Professor Gustav Gaertner**, of Vienna, as the triumphant solver of the much discussed problem of the best artificial food for infants. Cow's milk contains, as compared with human milk, too much casein and salts, and too little sugar. In round numbers, it contains double the quantity of casein, and about an equal quantity of fat. Dilution with an equal quantity of water reduces the amount of casein to the proper proportion, but at the same time lowers the proportion of fat very much below the requirements of the organism as indicated by the constitution of human milk. As was mentioned in the “Year-Book for 1894,” p. 187, § 1, **Soxhlet** proposed to overcome this defect by adding a large quantity of milk-sugar, and his device has been followed on a

large scale in Germany, with, it is stated, satisfactory results. At the same time, Soxhlet himself, in the address in which he described his plan, admitted that it would be much better if a method could be found by which the proportion of fat could be brought up to the required standard. This is what Gaertner proposes to do. His method depends upon the use of the centrifugal machine now so extensively used in dairies under the name of "cream separator" (*Wien. med. Woch.*, No. 44, 1894). Fresh milk is diluted with an equal quantity of water and placed in the separator. The two taps are so adjusted that they yield equal quantities of fluid. From the tap connected with the outer part of the centrifugal vessel runs a watery fluid containing half the casein, milk-sugar, and salts, and only a small part of the fat (0·2 per cent.) of the original milk. From the other tap runs a fluid containing the like quantity of casein, milk-sugar, and salts, but nearly all the fat (cream). This creamy milk is the product given to infants. To it **Escherich** (*ibid.*) proposes to apply the name of "fat-milk." The following table shows the comparative chemical constitution of cow's milk diluted with an equal quantity of water, of the "fat-milk," of "Meigs's Mixture," and of human milk:—

	Proteids.	Fat.	Sugar.	Ash.
Cow's milk with an equal quantity of water ... ..	1·76	1·81	2·4	0·35
"Fat-milk" ... ..	1·76	3·0	2·4	0·35
"Meigs's Mixture" ... ..	1·21	3·50	6·66	0·25
Human Milk ... ..	1·82	3·94	6·23	0·31

Fat-milk looks like ordinary milk, but creams quicker, and is less sweet. It gives a curd which is much more voluminous, lighter, looser, and finer, than that given by cow's milk diluted with an equal quantity of water. This method has the further advantage, that in the process of centrifugalisation the cow's dung, hair, and other filth, which are always found in milk, are retained in the machine, forming a kind of skin in the outer part. The dangerous nature of this "skin" is sufficiently indicated by the fact that it has been necessary to abandon the custom of giving it to pigs, as it disagreed so violently with these animals that they died. **Biedert**, indeed; at the Hygienic Congress at Budapest, urged that all milk, but especially that intended for infants, should be centrifugalised solely in order to get rid of the dirt. **Escherich** states that the "fat-milk" is well

taken by infants, except by those who have become accustomed to milk sweetened with cane-sugar. The stools became more frequent, soft, and soapy. The quantity of the fat-milk given was settled on the basis of Heubner's observations as follows :—First month, eight bottles of  $\bar{z}$ ijss. each ; second and third month, seven bottles of  $\bar{z}$ iv. each ; later, six to eight bottles of  $\bar{z}$ v. each.

It is clear, of course, that the exact composition of this “fat-milk” must depend upon a variety of circumstances : in particular, on the quality of the milk used for its preparation, and the care with which the centrifugaliser is adjusted to yield equal quantities of fluid from both taps. Gaertner recommends that the percentage of cream in the milk used for making the “fat-milk” should be controlled by occasional estimations.

The clinical experience with this “fat-milk” is as yet very limited, but in chemical constitution it resembles very closely “Meigs's Mixture,” devised by **A. V. Meigs**, of Philadelphia, which has been used largely, especially in America, with results which have been, on the whole, satisfactory. “Meigs's Mixture” consists of milk, 1 part ; cream, 2 parts ; lime-water, 2 parts ; solution of milk-sugar, 3 parts. The cream should contain from 14 to 16 per cent. of fat, and the solution of milk-sugar should be made by adding  $17\frac{3}{4}$  drachms to a pint of water. **Rotch's** modification of this is cream (about 15 per cent.), 2 parts ; milk, 1 part ; lime-water (diluted with  $\frac{3}{4}$  water), 2 parts ; solution of milk-sugar ( $3\frac{3}{8}$  drachms to water  $\bar{z}$ 3), 3 parts. As a practical receipt, by which a nurse could make half a pint of the mixture, he gives the following :—Cream (20 per cent. fat), one and a half fl. oz. ; milk, one fl. oz. ; water, five fl. oz. ; milk-sugar, three and three-eighths fl. dr. He has the mixture steamed for twenty minutes, with a cotton plug in the neck of the bottle ; when partially cool, half an ounce of lime-water is added, and the bottle put on ice. In hot weather the steaming should be done in a series of small bottles, as in Soxhlet's apparatus, one for each feeding, and the lime-water added immediately before each feeding. Escherich states that the “fat-milk,” so far, has been used without the addition of milk-sugar, and by so much it must be inferior in nutritive value to “Meigs's Mixture” ; but milk-sugar could no doubt easily be added before sterilisation, which he appears to assume must be performed as soon as the “fat-milk” has been obtained from the separator. One of Soxhlet's objects, however, in devising his milk-sugar mixture, was to avoid the sterilisation of cow's milk containing an excess of fat, as the result was not satisfactory, the fat running together into oily drops, and the milk having an unpleasant taste.



If we leave out of account, as with proper municipal regulations we ought to be able to do, the risk of the conveyance of tuberculosis by milk, sterilisation is employed mainly to prevent diarrhoea, which may be produced by the presence of microbes, or their products, in the milk as delivered to the consumer. As a matter of practice, the milk need not be absolutely sterile, since the digestive organs of a healthy child will destroy a very considerable number of microbes. Indeed, the same must be true of a child, who, debilitated in other ways, is free from active gastrointestinal disorders. As it is, however, much of the milk sold in large towns not only contains a large number of microbes, some of which are pathogenic, but also has already undergone various fermentations, so that it contains lactic, formic, acetic, and butyric acids. **A. Baginsky** has recently (*Berl. klin. Woch.*, Nos. 43 and 44, 1894) insisted on this point; as also on the fact that sterilisation will not defend the child against the microbes which enter its mouth from the air it breathes and the toys and other miscellaneous objects which it delights to suck, nor from those which reach it in the imperfectly-cleansed bottles and cups with which it is supplied by its guardians. Sterilisation is, therefore, directed in great part to obviate the evils due to the dirtiness of the milkman.\* As things are, however, the risk of the communication of tuberculosis by milk cannot be left out of account, and constitutes an additional argument in favour of sterilisation. **Woodhead** (*Lancet*, Oct. 27, 1894) has recently expressed his conviction that, in children, in a large proportion even of the cases in which death is brought about through the lungs, the pulmonary disorder is secondary to a primary lesion in the alimentary canal.

**Budin and Chavane** (*Bull. de l'Acad. de Méd.*, July 17, 1894) state that they have employed whole milk brought to the boiling-point in a water-bath with satisfactory results, to supplement the diet of an infant whose mother supplies an insufficient quantity of milk. In ordering this addition to the natural supply they have been guided by systematic weighing of the infant. When, in the absence of obvious disease in the child, it failed to make weight, a certain quantity of sterilised milk, varying in relation to the deficiency, was ordered. The milk was given undiluted. It was

\* A dim empirical perception of this truth probably gave origin to the superstition as to the advantages of the "milk from one cow"; the milk in these circumstances "is milked into the customer's own jug," and thus the chances of contamination by dirty vessels is diminished materially. Typhoid fever is, there can be little doubt, to be reckoned among the diseases which, when it is disseminated by milk, is due to the milkman's dirty methods, or rather to his imperfect notions on the subject of cleansing.

given also to infants for whom breast-feeding was for various reasons impossible. They consider that in a child whose digestive functions are good, the excessive quantity of casein in cow's milk does not, as a rule, cause any inconvenience, and that the omission of the addition of water, lime-water, barley-water, etc., removes one source of danger. Further, they assert that the casein of milk which has been raised to boiling-point is more easy of digestion. They insist that milk boiled in separate bottles, one for each feeding, is to be preferred very much to milk sterilised commercially in large quantities, and often preserved for indefinite periods in bottles. Such milk is often raised above boiling-point, and undergoes changes in taste and appearance. They point out that there is considerable danger that parents, in their anxiety, may give the child too much, and that some cases of vomiting and diarrhœa are due to this cause. An attack of this kind may reduce the child's weight seriously. In the discussion on this paper, **Tarnier** observed that milk brought to a temperature of 212° F. could not properly be called sterilised milk; and further, that milk not heated above the boiling-point of water appeared to be a more satisfactory article of food for infants than milk boiled in an open vessel. There is a belief very common among mothers that it is undesirable, as the saying is, "to mix the two milks"—that is to say, to let the child take at the same time the mother's milk and cow's milk. This prejudice seems to be quite unfounded, and Tarnier insisted that the mixed feeding was very much to be preferred; that is to say, if the mother's supply of milk is insufficient, the proper course is to give cow's milk in addition, and not to cut the child off the breast at once. Even a few weeks of this mixed feeding might, he thought, make all the difference.

## 2. Scurvy.

**Barlow**, in his Bradshaw Lecture (*Brit. Med. Journal*, Nov. 10, 1894), has discussed the causation of scurvy in infants, and its relation to rickets. He makes the very important observation, in relation to sterilised milk, that it may be one of the artificially-prepared foods for infants which are capable of producing scurvy. Scurvy is no doubt a rare disease in infancy, but there seems reason to suppose that both in Great Britain (Barlow) and in America (see below) it is becoming more common, especially among the well-to-do classes. There are, moreover, cases which present symptoms that cannot be considered as conclusively scorbutic, but are yet with great probability to be attributed to this cause. Among such "borderland cases," as he calls them, Barlow reckons (1) certain cases of rickets which present a degree

of irritability and tenderness out of proportion to the signs of rickety bone-changes found; (2) certain cases of hæmaturia without obvious cause, and possibly (3) other hæmorrhagic affections, of which the most remarkable is proptosis, produced by extravasation beneath the periosteum which lines the roof of the orbit. Such cases, as well as the most marked examples of scurvy, respond to antiscorbutic treatment. With regard to the error in feeding which may produce scurvy in infants, Barlow said: "The proprietary foods are the great offenders, especially those which are prepared with water and with condensed milk, or with a very small amount of cow's milk. Condensed milk is responsible for a fair number. The disease also occurs when very diluted cow's milk is used, and especially when for some reason, after a long employment of considerably diluted milk, the dilution is suddenly carried to a further stage, even with or without the substitution of some artificial food. The disease also occurs when peptonised milk has been given over long periods. Several definite examples have been observed in infants to whom for several months as much as a pint and a half and one quart of humanised sterilised milk has been given in the twenty-four hours. By this preparation I mean milk which has been deprived of half its quantity of casein, and has been subsequently sterilised, and in several cases stored for some weeks. I think there is reason to suspect that the boiling of cow's milk and prolonged sterilisation (especially at high temperatures) lessens in some degree its anti-scorbutic quality." Barlow states that in no single case of scurvy at the time of onset has the child been breast-fed. The disease has been known to occur as early as four months, and is not unknown between two and twelve years of age, but most of the cases observed have been between nine and eighteen months of age. In practice the dangerous period commences about the eighth month, and the precautions he recommends are that if by that period a moderate quantity of scalded milk has been given (say,  $1\frac{1}{2}$  pint in the twenty-four hours), then, instead of adding one of the proprietary foods, as is the common practice, the occurrence of scurvy may be warded off by the addition of gravy or meat-juice to the milk, but still better by the addition of some carefully-sieved potato. The fear of non-assimilation of starch has, he thinks, prejudiced us unduly against the use of living food. Should it be found that potato, cooked and sieved and given with milk and gravy, is not tolerated (which is a very rare event), small quantities of the juice of fresh fruits afford a ready method of anticipating scorbutic symptoms. Treatment of the developed disease must be on the same lines. Replace condensed milk by



fresh milk ; in place of over-diluted cow's milk, give whole fresh cow's milk (a full pint for a child of six months old) ; or in place of the proprietary food previously given let the child have sieved potato mixed with the milk. Let it have also a table-spoonful of fresh meat-juice or gravy, and let it have in addition a table-spoonful of orange-juice or grape-juice during the day in divided doses mixed with water as required. The good effect of this line of treatment is apparent immediately, and the progress of the disease is definitely arrested. Infantile scurvy is thus seen to be, in respect to its ætiology and treatment, analogous exactly to adult scurvy, and a perfect series may be traced from infancy, through childhood, to adult life, in which the differences of symptoms are explainable by the different physiological activity of the tissues specially involved. The disease has no direct relationship to rickets, and the fact that many children suffering from scurvy present also signs of rickets is an example of the coincidence of two morbid states.

**Northrup** and **Crandall** have published (*New York Med. Journ.*, May 26, 1894) an interesting study of a series of thirty-six cases of scurvy in young children. They think it probable that this disorder is more often met with in private than in hospital practice, and possible also that it is really increasing in frequency. They fully confirm the view that it occurs mainly in children who are fed on condensed milk, and on patent foods. It is perhaps because the use of these foods is more common, and, when resorted to, more thoroughly carried out among the well-to-do, that scurvy is more often seen in their children. Two-thirds of their cases occurred between the ages of nine and thirteen months, and rickets was a frequent but not an invariable accompaniment ; the cases in which rickets was not present did not differ in any other respect from the cases in which it was, and "scurvy rickets" should not be accepted as a distinct disease, but as scurvy occurring in a rickety child. The most characteristic conditions are anæmia, and subperiosteal hæmorrhages. The latter are seldom seen in the upper limbs, and affect the thigh more commonly than the leg. The limb is intensely tender, it is swollen, the skin is tense, and often livid or purple ; the local temperature is not increased, and the skin does not pit. In severe cases with hæmorrhage, near the end of a bone there may be detachment of the epiphysis. Before the eruption of the teeth, stomatitis may not occur, or may be slight and easily overlooked. Mistakes in diagnosis appear to be not infrequent : rheumatism, sarcoma, osteitis, and infantile paralysis are among the erroneous diagnoses which have been made. The mistake is all the more serious since

scurvy is, if improperly treated, a very fatal disease, whereas it yields rapidly to appropriate dietetic treatment. Fresh milk, beef-juice, and orange-juice they found to be the most effective remedies.

As to the nature of the chemical change in milk, produced during the process of boiling or sterilisation, which could be responsible for its scorbutic qualities, nothing is certainly known. **A. Baginsky** (*loc. cit.*) gives some analyses which tend to prove that milk treated by Soxhlet's method, which involves keeping it for an hour at a little over the boiling-point of water, contains a larger quantity of inorganic phosphoric acid than fresh milk, and that the increase is still greater in milk which has been really sterilised (as tested bacteriologically). This change he attributes to a breaking-up of the nuclein and lecithin of the milk. Barlow (*loc. cit.*) observes that there is some reason to believe that in a diet capable of producing scurvy there is some fault in the presentment of the saline constituents of the food, and in the facility with which they part with their bases. But he adds that the problem is possibly biological as well as chemical. "The further we get from a living food the less is the antiscorbutic power." Fresh vegetables are more powerful antiscorbutics than preserved or cooked vegetables. Raw meat is more antiscorbutic than cooked meat, and raw meat-juice than beef-tea. So also it is now seen that raw uncooked milk is more antiscorbutic than cooked milk.\*

### **3. Gastro-intestinal catarrh; dilatation of the stomach.**

Among the disorders of early childhood there are few more harassing alike to the mother and the medical attendant than the pathological condition characterised by the appearance of successive crops of small urticaria, associated with dyspeptic symptoms, and often with signs of rickets. The irritation produced by the urticaria renders the life of the child miserable, the mother suffers from broken rest, and the medical attendant is apt to suffer not only in his peace but in his credit. The key to a right treatment of these cases is afforded undoubtedly by the

\* Gellon has devised a plan of treating milk which, it is thought, may solve the difficulty of preserving it unaltered for some days. It does not seem to have been carried out as yet on a commercial scale. The milk, immediately after milking, is placed in a closed vessel, in which it is subjected to the action of oxygen gas at a pressure of 5 or 6 atmospheres. After remaining for five or six hours under this pressure, the milk is drawn off into air-tight cans, where it is kept under a pressure of two atmospheres of oxygen. It can be transported in these cans, and when subsequently drawn off the oxygen quickly escapes, leaving a milk which, it is stated, has not undergone any modification of composition, flavour, or aroma. It is admitted that sterilisation is not complete.

dyspepsia to which reference has been made. **Comby** has pointed out that the children commonly have dilated stomachs. **Funk** and **Grundzach**, in a recent paper (quoted in *Rev. des Mal. de l'Enfance*, from *Monatsh. f. prakt. Derm.*, Feb., 1894), have in a series of observations fully confirmed Comby's observation. They used a special method of examination for determining the presence of gastric dilatation. While one observer applied a stethoscope to the abdomen over the region of the stomach, the other percussed out the area of the stomach; the note perceived by the ear applied to the stethoscope was quite different when the percussion was made over the stomach from that heard when the percussion was made over the intestine. In cases of the kind to which reference is here made they found that the lower limit of the stomach, after the ingestion of some liquid, reached as low as the umbilicus, or lower. In healthy children the lowest limit was from 2 to 3 inches above the umbilicus. The urticaria is in all probability due to the absorption from the gastro-intestinal canal of certain poisons, the products of imperfect digestion. The dilatation of the stomach doubtless favours the production of these poisons by causing delay in the passage of the stomach contents onward. In the treatment of this affection the best results I have observed have been with some of the drugs recommended in recent years as intestinal antiseptics. Naphthaline and salol have been the drugs from which I have seen the best results. Of the latter an infant of a year old may be given 2 grains, three times a day, or even more; of the former 1 grain. **Bruck** (*Rev. des Mal. de l'Enf.*, May, 1894) gives to a child between one and three years 15 grains of benzo-naphthol during twenty-four hours, to an infant of six months from a half to a fifth of this amount, and to a child of eight to fourteen years half a drachm. He states that with this drug—and the observation applies also to other antiseptics of this class—the first effect to be noted is an improvement in the general condition; next the stools become less fetid, and finally decrease in number. This last result, however, may fail to be achieved, and then it will be found that astringents which may have been given before without advantage will check the morbid frequency of the action of the bowels. Small doses of opium (m.  $\frac{1}{2}$  to 1) appear to have the same effect. **Damourette** (*Thèse de Paris*, 1894) states that Budin prescribes benzo-naphthol in doses of  $1\frac{1}{2}$  grain in milk four or five times a day. First of all, however, he gives about three-quarters of a grain of calomel in two or three doses at intervals of an hour. A quarter of an hour before each meal he gives about 6 or 7 grains of pepsin with a few drops of hydrochloric acid in sweetened or flavoured water.



Chronic gastro-intestinal dyspepsia is comparatively seldom seen in infants suckled at the breast, but is extremely common in hand-fed infants, especially if the bottle with a long tube be used. In infants at the breast regurgitation is not uncommon, and appears to be merely mechanical, but in bottle babies it may be the first sign of dyspepsia, and should not be lightly regarded, more especially if the child's breath has a butyric odour. If untreated, regurgitation in such cases is quickly succeeded by vomiting. **Kalopothakes** (*Thèse de Paris*, 1894) finds that in these cases an actual gastritis is quickly set up, involving the secreting cells as well as interglandular tissues; finally, a condition of atrophic sclerosis of the mucous membrane ensues. The treatment must be directed in the first place to the regulation of the diet. The starting-point may be an excessive quantity of milk or insufficient dilution, though the commonest cause no doubt is bad quality of the milk. The administration of small doses of alkali shortly after a child has been fed is a palliative, but should not be regarded as a remedy. If the milk is very acid, it is wiser to change the source of supply, since a decidedly acid milk is probably otherwise of bad quality, and almost certainly rich in microbes.

#### **4. Acute affections of the lungs.**

In acute bronchitis, and broncho-pneumonia, secondary to measles, whooping cough, influenza, etc., or primary, and in bronchitis and emphysema during an exacerbation, in fact in all acute disorders of the lungs in which it is customary to order poultices or counter-irritation, **Le Gendre** (*Rev. des Mal. de l'Enfance*, July, 1894) finds that the continuous application of cold compresses gives results as good or better. The compresses should be wrung out of cold water until nearly dry, and covered with oiled silk. The compress should be changed at first every quarter of an hour, then every half-hour, and finally every hour, the frequency being determined by the results attained. The application is well borne by children, even the youngest, and the treatment can be repeated again and again in cases in which the condition calling for it returns. It calms the nervous excitement, produces sleep, and diminishes dyspnoea. It tends also to reduce the temperature. Le Gendre has also employed the method with advantage in the treatment of acute intercurrent inflammatory affections in the course of pulmonary tuberculosis. As Le Gendre points out, this method of treatment has been extensively adopted in Germany, and it is, I believe, the routine treatment in the Children's Hospital at Leipzig (Heubner), and at some other hospitals. My own experience of it has been limited, but

the results have been most satisfactory, not only in diminishing the pyrexia, and the physical signs of bronchitis or broncho-pneumonia, but also in calming the nervous distress, and producing sleep. Hot baths have been recommended by **R. Topp** (*Therap. Monatsh.*, Jan. and Feb., 1894) in the treatment of capillary bronchitis and broncho-pneumonia. He recommends three or four baths a day, at a temperature of 103° F. to 107° F. He states that the baths increase the amount of urinary nitrogen, and as a rule the bulk of the urine, and that in health they appear to determine an increased destruction of albuminoids.

### 5. Adynamia in acute diseases.

From observations made in Sevestre's clinique at the Trousseau Hospital in Paris, **Bruneau** (*Thèse de Paris*, 1894) strongly recommends caffeine in the treatment of cardiac adynamia, whether occurring in typhoid fever, in diphtheria, or in that stage of pneumonia when, as Huchard has said, the disease is in the lungs but the danger from the heart. It is of great use also in preventing collapse after cold bathing in these diseases. Bruneau suggests that the drug has not been more used because the doses commonly given have been too small. The drug may be given by the mouth, but it has a bitter taste, and may excite gastritis, or at least produce complete anorexia. An imitation of Bruneau's prescription expressed in English measures would be : Caffeine, benzoate of soda, of each 3 grains ; vanillin, one-twelfth grain ; rum, 1 drachm ; syrup of tolu, a drachm and a half ; and water sufficient to make half an ounce ; two doses daily. A much more satisfactory way of giving caffeine, and the one which is to be specially recommended when the effect of the drug is required to be exerted immediately, is by hypodermic injection. The quantity given in this way should be 3 grains, and the dose may be repeated within twenty-four hours. For injection, the solutions in use at the hospital mentioned are (1)  $3\frac{1}{4}$  grains of caffeine dissolved in water with  $2\frac{1}{2}$  grains of salicylate of sodium ; (2)  $3\frac{1}{4}$  grains of caffeine dissolved in water with about  $3\frac{1}{2}$  grains of benzoate of sodium. The point chosen for the injection is the back, the loins, or the thigh, or some other part well provided with subcutaneous adipose tissue. The injection causes little pain, but may be followed by abscess if not performed with antiseptic precautions. As much as  $6\frac{1}{2}$  grains may be given in this way, in two doses during the day, to a child of eighteen months or two years. The only unpleasant symptoms noticed were delirium, and this only in cases in which there was albumen in the urine.

## 6. Rheumatism.

**Jules Simon** (*Rev. Gén. de Clin. et de Thér.*, Dec. 16, 1893) recommends that in the treatment of acute rheumatism in children salicylate of sodium should be given at first in small doses, then increased, and finally, after symptoms have passed away, gradually decreased. On the first day he gives  $7\frac{1}{2}$  grains, on the second day 15 grains, rising by  $7\frac{1}{2}$  grains a day until the maximum daily dose of 45 grains is reached, if necessary. The indication for ceasing to increase the dose is cessation of the pain and swelling of the joints. When this is attained, the drug must not be stopped, but it should be decreased, by reducing the dose until the quantity taken is 15 grains a day; this quantity should be continued for a week at least. Simon states that in his opinion the ordinary duration of an uncomplicated attack of acute rheumatism in a child is about a month, and that if the salicylate of sodium is stopped prematurely, *i.e.*, within this period, the disease will reappear. He looks upon rest in bed as the best preservative against complications. He gives diuretic drinks, and keeps the patient on a milk diet. Before enveloping the affected joints in cotton-wool, he directs them to be rubbed with a liniment composed of extract of belladonna 1 part, oil of henbane 8 parts, and oil of camomile 15 parts. In chronic rheumatism he recommends the administration of colchicum (*Rev. Mens. des Mal. de l'Enfance*, June, 1894). He gives 10 minims of the tincture of colchicum before the evening meal, every evening for a week; then allows an interval of a week, and again commences the administration. If the results are not satisfactory after a fair trial, iodide of potassium may be given in the intermediate weeks. After the joint troubles have subsided, the patient should be given tonics, especially arsenic and the phosphates.

## 7. Vulvo-vaginitis.

The purulent discharge from the vulva which is met with not infrequently in young children, especially among the poorer classes, but not among these exclusively, appears to be in most cases associated with a coccus indistinguishable microscopically from the gonococcus. Whether really gonorrhœal in nature or not, this disorder is often extremely intractable, owing no doubt in many cases to the fact that the inflammation extends beyond the hymen, while the remedies used do not pass that barrier. The methods of treatment recommended by **Monod** and **Rocaz** (*Rev. Mens. des Mal. de l'Enf.*, March, 1894) is as follows: They use a solution of permanganate of potassium, at first 1 in 4,000, but eventually 4 in 1,000. The child being placed at the edge of the bed, in the lithotomy position, a soft elastic male catheter is



introduced beyond the hymen to the top of the vagina. The catheter is placed in connection with a receptacle containing the solution, and elevated about three feet above the bed. About half a litre (rather more than  $\frac{3}{4}$  pint) is used on each occasion, and the irrigations are repeated three times a week. In the intervals between the injections the children are given sitz baths. In some cases the first injection causes an increase in the amount of the discharge, but this soon passes off. All the cases thus treated recovered, it is stated, in a fortnight, or at most a month.

# ANÆSTHETICS.\*

By DUDLEY W. BUXTON, M.D., B.S.Lond., M.R.C.P.,

*Anæsthetist and Lecturer on Anæsthetics in University College Hospital, Anæsthetist to the National Hospital for Paralysis and Epilepsy in Queen Square, and to the Dental Hospital of London.*

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Anæsthetics may be employed to remove sentience to pain in particular areas—(1) local anæsthetics; or to render the patient unconscious—(2) general anæsthetics.

## 1. Local anæsthetics.

Cocaine, tropacocaine, chloride of ethyl, chloride of methyl, coryl (Joubert), and freezing by ether spray. Probably none of these substances or methods are quite reliable.

**Cocaine** is perhaps most useful in ophthalmic surgery. It is mydriatic and paralyses accommodation. In cases such as for the removal of foreign bodies fixed in the cornea cocaine should not be employed, as by rendering the ocular structures flaccid, it makes the operation of removing the foreign body more difficult, or even renders it an impossibility. Watery solutions of the hydrochlorate (2 to 4 per cent.) are employed, or a cocaine disc (Martindale) is placed between the ocular and conjunctival mucous membrane, and from three to eight minutes allowed to elapse before the operation is commenced. Painting of even very strong solutions is of little value when applied to the skin. For hypodermic injection fresh solutions should be used, and regard should be had to the fact that an idiosyncrasy exists in many persons towards the drug, rendering them liable to severe toxic symptoms when even minute doses are used. From  $\frac{3}{4}$  gr. to 1 gr. in adults may usually be given, but only when this idiosyncrasy is known not to exist. Reclus's† method of using cocaine consists of injecting weak, *i.e.*, 1 to 2 per cent., into the subcutaneous cellular tissue. The patient is placed horizontal. The Pravaz syringe should hold solution containing 1·5 or 3 grains, and very

\* It is deemed advisable to avoid repetition in these articles, and so the reader is referred to the "Year-Book of Treatment" for 1893 and 1894 for articles on anæsthesia which deal more fully with chloroform and ether, and the more common methods of giving these anæsthetics.

† P. Reclus et Isch Wall, *Revue de Chirurgie*, 9th année, 1889: also *Semaine médicale*, Jan. 25, May 17, and Sept. 20, 1893.

slow intercutaneous injections are made at intervals of three to four or five to six minutes, according as the weaker or stronger solution is employed.

Insensibility obtains over an area of about half an inch from the puncture. Various persons who employ this method use phenate of cocaine to insure antisepsis as well as anæsthesia ( $\frac{1}{12}$  to  $\frac{1}{6}$  grains). **Corning's** method consists in freezing the skin with ether spray, then injecting a 2 or 3 per cent. solution of cocaine. A syringe is employed which allows of this first injection to be immediately followed by one of cocoa butter. This substance solidifies from the cold of the spray, and prevents the cocaine becoming absorbed, and so prolongs local anæsthesia. A further plan applicable to the digits, limbs, etc., employed by **Corning**, by **Mayo Robson** and **Kummer**\* consists of incarcerating the cocaine, injected by the use of an Esmarch's band, which, by compressing the superficial veins, checks deportation of the cocaine. **Schleich**† uses still smaller quantities of cocaine, with, he asserts, satisfactory results. He makes a solution of one part cocaine in 1,000 of a 0.2 per cent. solution of sodium chloride; or, in cases where a more prolonged period of anæsthesia is necessary, and therefore more injections will be required, he uses a cocaine solution of 1 in 5,000 of the sodium chloride solution. He further uses a solution of 1 in 10,000 cocaine. In each case he sterilises the water before making the solution. A syringe of capacity of one to two ounces is filled with one or the other of the solutions, and the contents slowly injected into the subcutaneous tissues after the area of injection has been rendered painless by the ether spray. In cases of bone operations intraperiosteal injections are practised. The aim is to render the tissues over the area of operation artificially œdematous, and it is said that sloughing does not result if the technique is conscientiously carried out. **Gauthier**‡ employs a mixture of cocaine with glonoin in order that the latter drug may counteract the deleterious properties of cocaine without interfering with its action as an analgesic. He uses 10 grammes of water, 20 centigrammes of the hydrochlorate of cocaine, and 10 drops of an alcoholic solution of nitro-glycerine 1 in 100, and injects with

\* E. Kummer, "De l'anesthésie locale par injection de cocaine, et du bon effet de la bande d'Esmarch."

† *Verhandlungen der deutschen Gesellschaft für Chirurgie*. See also *Therapeutische Monatshefte*, Sept., 1894: "Zur Infiltrationanästhesie," von Dr. C. L. Schleich.

‡ G. Gauthier de Charolles, *Revue gén. de clin. et de thérap.*, Paris, 7<sup>e</sup> année, Sept., 1893.



a Pravaz syringe holding 2 centigrammes of cocaine and one drop of the nitroglycerine solution.

**Tropacocaine.** Besides its employment in ophthalmic surgery,\* **Pinet** and **Viau**† have employed it in dentistry, using  $4\frac{1}{2}$  to 6 grains in extractions according to the severity of the case. They regard toxic symptoms as occurring directly in proportion to the strength of the solution employed, but think it less poisonous than cocaine. The following useful rules against accidents under cocaine and its congeners may be quoted‡:—

(1) The injections should be performed antiseptically, the solution made with sterilised water and at the time of the operation. (2) A few drops should be forced into the tissues as the needle is pushed through the skin, and care taken that no vein is punctured. (3) The patient should be supported by strong beef-tea or equivalent. (4) He should be placed in the horizontal posture, and (5) should have no tight clothing on him. (6) Persons the subjects of disease of the lungs, heart, kidneys, or arterial degeneration; the cachectic, old people, women who are pregnant or nursing, should be most carefully watched, and given only small doses of cocaine, *i.e.*, 1 or 2 centigrammes. (7) It should be remembered that women are more prone to untoward effects than men. (8) The best antidotes are inhalation of ammonia, acetic acid, or nitrite of amyl. Cold affusion to the face and chest. **Moss**§ recommends the inhalation of ether or chloroform to counteract the diaphragmatic spasm occasionally caused by cocaine, and so obviating the danger of asphyxia.

Besides the **Chloride of Ethyl** and **Chloride of Methyl** which are dropped on the part to produce analgesia by rapid evaporation, **Joubert**|| has invented a somewhat complicated apparatus which he calls a *Coryleur*, designed to produce local anæsthesia by the evaporation of **Coryl**. This substance is a combination of chloride of methyl with chloride of ethyl, possessing a boiling-point between them. The coryleur is a nickel-plated apparatus, which, when charged with coryl, allows the operator, by turning a wheel-key, to produce a more or less vigorous spray of coryl upon the part to be numbed. The skin,

\* See art. "Anæsthetics" in "Year-Book of Treatment, 1894."

† "Essais d'anesthésie locale en chirurgie dentaire au moyen de la tropacocaine."

‡ Terrier et Péraire "Petit Manuel d'Anesthésie chirurgicale," p. 76; Paris, 1894.

§ "Ueber die physiologische Wirkung des Cocaïn," *Arch. f. experim. Pathologie und Pharmacol.*, Bd. XXIII.

|| Coryl, Coryleur: "Étude d'anesthésie locale," par Jules d'Argent; Paris, 1894.

when whitened, is dried with cotton-wool, and then coryl is again played upon it. It is an excellent arrangement, fulfilling its purpose well. The analgesia produced is as good as any brought about by refrigeration, but open to the objections applicable to all such means. The coryleur has been used in dental practice and minor surgery.\* Some writers, *e.g.*, **Dandois**, **Terrier**, and others, employ coryl together with hypodermic injections of cocaine. An important caution is given by **Dor** (Soc. de Scien. Méd. de Lyons, Feb., 1894), in the case of all local anæsthetics which are dropped or sprayed on. A patient upon whose gum chloride of ethyl was being dropped, accidentally received a little in the eye, which caused a permanent corneal opacity.

## 2. General anæsthetics.

**Nitrous Oxide**, used alone or in combination. For brief operations nitrous oxide possesses many advantages. It has been pointed out that there is frequently some degree of cyanosis, more or less movement, jactitation, and if the exclusion of air be maintained beyond about a minute, asphyxial symptoms may supervene, which are in many cases most undesirable. To obviate these, various attempts have been made to produce anæsthesia without excluding such an amount of oxygen as is required to maintain normal tissue metamorphosis. From the time of Paul Bert to the present day, mixtures of air or oxygen with nitrous oxide have been in vogue. **Hewitt**† has recently had constructed an admirable apparatus for the employment of oxygen and nitrous oxide gas. The gases are in horizontal bottles, and enter separate bags, communicating with a common face-piece and mount. By a movable valve the quantities of the two gases can be fairly accurately controlled. The patient first empties his chest of air by one or two deep inspirations and expirations; he then inhales nitrous oxide, and after one or two breaths a certain small quantity of oxygen is allowed. This is increased as the anæsthesia advances. The quantity required is judged of by the character of the respiration, the colour of the patient's countenance, and the advent of slight snoring. Duskiess, snoring, tendency to jactitation, demand more oxygen; apnœa, tendency to laughter, excitement and general restlessness, indicate less. The pupil dilates as a rule on the advent of asphyxia, and so would be an indication of more oxygen being required. The presence of true anæsthesia is not always easy to determine; it is usually shown by insensibility of the cornea, a distant "far-off look" in

\* The apparatus and fluid are to be obtained from the Dental Manufacturing Company, Lexington Street, or Messrs. Claudius Ash.

† "Anæsthetics and their Administration," London, 1893, page 121.

the eyes, which, although difficult to describe, is easily recognised after having been once seen. The anæsthesia is usually quite calm, and like natural sleep. One minute and a half or two minutes may be occupied in going off, and a slightly longer period of anæsthesia obtained than under plain nitrous oxide. . There is a greater liability to giddiness, sickness, and headache, after this mixture than when gas only is employed. It answers best for children, the anæmic, the cyanotic, women and persons in depraved health, and is unsuitable for the plethoric, alcoholics, and muscular excitable men.

The method of employing air intermittently with nitrous oxide has also been practised for some years, and from a somewhat prolonged experience of its use the writer can speak most favourably of it. Rowell,\* who well epitomises his experience of the plan, speaks highly of it in the same class of cases in which oxygen is applicable. Various ways of applying the method have been suggested, but the principle involved is probably the same. The patient breathes nitrous oxide gas for several respirations, the period being shorter for children, the anæmic, the enfeebled, longer for the vigorous and full-blooded. Then a breath or two of air is allowed with a resumption of the gas. When the patient is a second time showing signs of the physiological effects of nitrous oxide, but before the actual occurrence of stertor or jactitation, air is again given for three or four breaths, according to the individual. Gas is again given almost to the point of stertor, when it is discontinued, and the operation proceeded with. I have obtained a very prolonged period of unconsciousness by this means. The period of "going off" with gas and with its mixtures bears a direct ratio to the period of anæsthesia obtained. After-effects are, perhaps, slightly more frequent when air is mixed with the nitrous oxide than when the gas is given by itself. The probable explanation of these results is that, as the writer proved experimentally several years ago,† nitrous oxide exerts a specific action upon the central nervous system, producing anæsthesia quite independently of concomitant asphyxial symptoms, and acts directly as the "dose" or quantity of the gas entering into the circulation. When gas is given alone, the concurrent exclusion of air produces the symptoms of oxygen-hunger before the full dose of nitrous oxide is taken up by the blood. When, however, a more prolonged period of inhalation is permitted, as

\* "Note on the Use of Air with Nitrous Oxide." By George Rowell, F.R.C.S., being chap. iv. of Underwood and Braine's "Notes on Anæsthetics." 2nd Edition.

† See "Physiological Action of Nitrous Oxide," *Transactions of the Odontological Society of Great Britain* (1887), vols. xviii. and xix., and the author's "Anæsthetics, their Uses and Administration." 2nd Edition, 1892.



in the cases in which oxygen or air is given, more nitrous oxide actually enters the blood, and a more prolonged and marked physiological effect is rendered evident.

When a longer period of anæsthesia is required, ether should be given. The best method and apparatus are given in the "Year-Book of Treatment for 1894," pages 205-6. **Michele** (Bologna) addressed himself before the Eleventh International Congress to the comparison of ether and chloroform. He divided the usual objections lodged against ether into: (1) Imaginary; its intolerance in old age and infancy. (2) Those existent formerly, when the methods of giving ether in vogue were less precise than the present ones, *i.e.*, length of time of induction of anæsthesia, excessive struggling, sickness, incomplete muscular relaxation. (3) Inconveniences common to ether and chloroform, *e.g.*, temporary albuminuria, nephritis, vomiting. (4) Inconveniences proper to ether alone contra-indicating its use in certain cases; lesions of the respiratory tract, compression of the trachea (*e.g.*, by goître); the use of actual cautery to the mouth or its neighbourhood. The commonly alleged objection to ether, that it produces serious nephritic changes, has been made a special study by **Wunderlich** (*Centralblatt f. Chirur.*, No. 16, 1894), **Alber** and **Rindskopf** (*Centralblatt f. Chirur.*, No. 3, 1894, and *Deutsche medicinische Wochensh.*, No. 40, 1893). Wunderlich examined 100 cases of chloroform or ether narcosis, with the following results:—When albuminuria pre-existed, ether increased its amount. Transitory albuminuria commonly followed the taking of chloroform, seldom that of ether. While casts appeared when chloroform was used, they were less frequent after ether. He considers renal ischæmia, or increased blood-pressure, probably to be the cause of the casts and albumen. Alber and Rindskopf's results agree with those of Wunderlich.

**Campbell**, of Montreal, in an analysis of the urine in a hundred cases of ether narcosis, found the quantity of urine was not altered, but the excretion of urea was much lessened, *i.e.*, an average of 177 grains per diem, or  $\frac{2}{3}$  of the normal, being excreted. The quantity both of the urine and urea passed was inversely as the length of the period of anæsthesia, being, it is presumed, directly as the actual quantity of ether inspired. The lessened quantity of food taken, both liquid and solid, must also tend to bring about this result. Albuminuria occurred in only 6 per cent. of his cases; of these in half its presence was accounted for by the bladder having been sounded. Acetonuria was present in all cases within two days of the etherisation, appearing during the operation in 64 per cent. of the cases. **Lépine**,

(*Lyon Médical*, July, 1894), while taking part in an important discussion on anæsthetics at Lyons, said his experience upon this point was that chloroform acted more deleteriously upon the kidneys than ether. In cases of actual albuminuria in which ether was given, no increase of albumen was observed. He has met with transient ether albuminuria lasting fourteen days. He also lays stress upon the importance of the purity of the ether. The aldehydes so commonly present are dangerous. Absolutely pure ether can, Lépine avers, be given to persons who are actually suffering from bronchitis, and without any bad result. It would thus seem that the usual objections urged against the employment of ether vanish if regard be had to two things: (1) The purity of the drug, which must be absolute; and (2) The quantity of ether given. With a suitable apparatus, *e.g.*, Clover's, a small quantity only need be given, the patient passing rapidly under its influence, and with comparatively little given subsequently he can be kept anæsthetic for hours.

**Chloroform.** Besides the use of the improved Junker's inhaler, described in the "Year-Book of Treatment" for 1894, page 208, various inhalers may be used. Recently the simple and efficacious inhaler employed by Lawrie in Hyderabad has been introduced in some London hospitals, and it can now be obtained.\* It consists of a cap made in different sizes of twilled calico of two thicknesses. Pieces of whalebone or wood are run into the seams, giving rigidity to the cone. At the apex is a piece of cotton-wool, upon which about two drachms of chloroform are poured from time to time. At the commencement of inhalation, care should be taken, by not holding the cap too close over the mouth and nose, to avoid exciting struggling or holding the breath. If struggling or holding the breath do occur, great care is necessary to avoid an overdose during the deep inspirations which follow. When quiet breathing has ensued, as the patient begins to go over, there is no reason why the inhaler should not be applied close to the face; and all that is then necessary is to watch the cornea, and to see that the respiration is not interfered with. "In any struggling persons, but especially with children, it is essential to remove the inhaler [cone] after the first or second deep inspiration, as enough chloroform may then have been inhaled to produce deep anæsthesia, and this may only appear, or may deepen, after the chloroform is stopped. Struggling is best avoided in adults by making them blow out hard after each inspiration during the inhalation."†

\* Messrs. Mayer and Metzler, Great Portland Street, London.

† Lawrie: "Report of the Hyderabad Chloroform Committee," pp. 395-6.

**After-effects.**

Among the minor inconveniences of anæsthetics is vomiting. It has been pointed out that the purer the anæsthetic the less is the liability to sickness, and **Calderon** (*Proc. California Academy of Medicine*) lays stress upon the great importance of preventing the saliva, which is copiously produced under both ether and chloroform, being swallowed. This saliva takes up the anæsthetic, and upon entering the stomach sets up nausea and vomiting. In each case the patient should be carefully prepared by having the bowels regulated for three or four days before the operation, and the diet restricted to light and nutritious material.\* Several deaths have occurred from chloroform given to children who had been made to fast for several hours before the anæsthetic was given. A young or delicate person should have beef-tea two or three hours before the operation if it be done following the night's fast. The swallowing of the saturated mucus can be prevented by sponging out the mouth and keeping the head on the side, thus encouraging the fluid to run out of the corner. Faintness and circulatory depression must be promptly counteracted by lowering the head and lifting the lower limbs—Nélaton's inversion. **Maas** (*Berl. klin. Woch.*, No. 2) has shown that rapid (100–120 times a minute) pressure made over the precordial region often restores cardiac action.

**Sparteïn**,† has been successfully used by **Langlois** and **Maurange** to avert secondary heart failures under chloroform. They found that it maintains the blood pressure even during deep narcosis, acting as a regulator to the heart, and lessening vagal excitability. Hypodermic injections of  $\frac{1}{2}$  gr. alone or combined with morphine fifteen minutes before chloroform is given will, according to these observers, lessen the danger of both laryngo-reflex and bulbar cardiac syncope. Discussing the treatment of heart failure **Hare** ‡ deprecates the employment of electric excitation of the pneumogastric as being more liable to produce inhibition. **Blanks** (*N. Y. Med. Record*, March, 1894), repeating this warning, insists upon the importance of injecting large doses of **strychnine** subdermically, not less than  $\frac{1}{20}$  gr., and if in a desperate case  $\frac{1}{10}$ , or even  $\frac{1}{5}$  of a grain. The writer has no experience of such heroic dosage, but can speak highly of the action of strychnine in more usual doses. As a prophylactic in the feeble, and especially in the anæmic, this drug is most valuable. It should be injected immediately before giving the anæsthetic.

\* See Dietary on p. 15, "Anæsthetics," 2nd ed. Lewis.

† *Gazette Médicale de Paris*, No. 28, 1894.

‡ Address to Mississippi Medical Association, Cincinnati, 1892.



**The purity of chloroform** has been insisted upon by many writers, and **Auschutz** has proposed, by preparing the drug and purifying it with salicylic anhydride ( $C_7H_4O_2$ ), which forms with it a crystalline body, to obtain an absolutely pure drug. **Weizel** of Bonn\* and **Hans Schmidt**† have found this chloroform in many respects preferable to others. There is no pungent odour, patients inhale it without check, and are quieter. After-effects are less severe, but some cases of circulatory depression occurred. The narcosis was less profound, and recovery

more rapid than with other chloroforms. It should, however, be noted that all these observers used the drop method of inducing anæsthesia.

**Respiratory failure**, when due to overdosing of the medullary centres, is usually associated with circulatory failure. In this case the one thing to do is artificial respiration, and in the partially or completely inverted position. The method advocated and described by **Howard** is the best, but it may be supplemented by **Sylvester's** plan. Common causes of interference with breathing are falling back of the tongue and sucking of vomit or blood into the

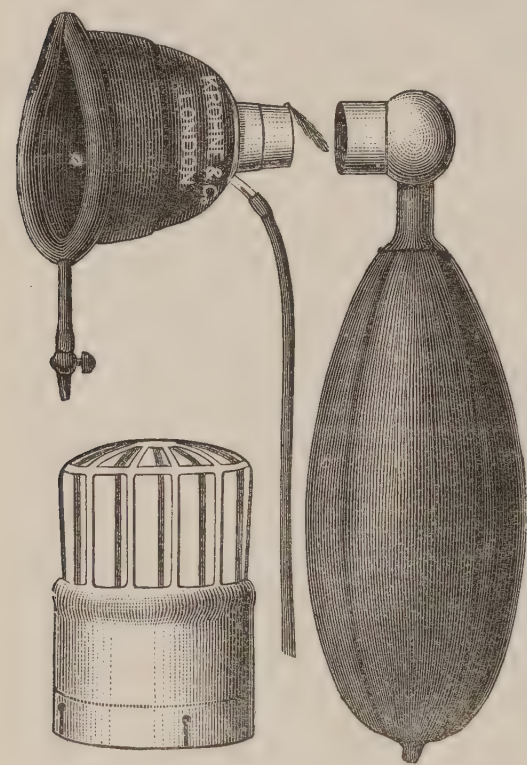


Fig. 1.—Ether Inhaler.

air-passages. The performance of **Sylvester's** method of artificial respiration in these cases has been shown by **Bowles**‡ to be both useless and dangerous. The rolling of the patient to one side after **Marshall Hall's** method should here be followed. The tongue drops forward and the vomit or blood flows out of the lungs instead of being pumped into the air-cells. It must also be remembered, as pointed out by **Thomson** (*Brit. Med. Journ.*, Oct. 14, 1893) that too vigorous a conduct of artificial respiration when the heart is not acting well only drives more blood

\* *Centralbl. f. Chir.*, No. 52, 1893, p. 1151.

† *Münch. med. Woch.*, June 26, 1894.

‡ "Apoplexy and Stertor," chap. v.

into the heart, and still further interferes with its chances of recovery.

### 3. Novelties in anæsthetic apparatus.

Although no really new principle has been applied in the

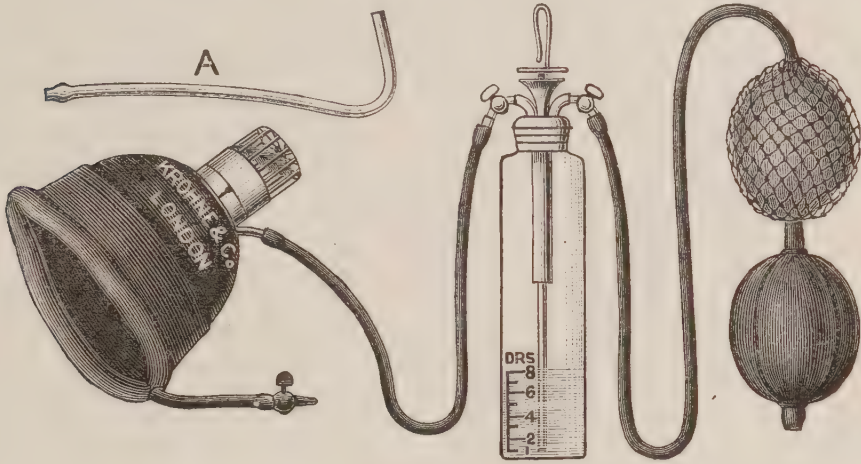


Fig. 2.

construction of inhalers used for the administration of anæsthetics yet several modifications of older plans have been introduced. Applying the plan of passing air through the anæsthetic before reaching the patient, Messrs. Krohne and Sesemann have constructed the apparatus here figured for the administration of ether.

Fig. 1 shows the facepiece, which resembles the vulcanite mask used with a Junker's inhaler, and which is connected by a tube with a bottle not seen in Fig. 1, but like that portrayed in Fig. 2. This bottle, however, is larger than that used when chloroform is given, and holds six ounces. It is graduated to two ounces, the usual quantity employed. In Fig. 1 is shown also the bag top, similar to the bag in Clover's Smaller Ether Regulating Inhaler, which fits on the

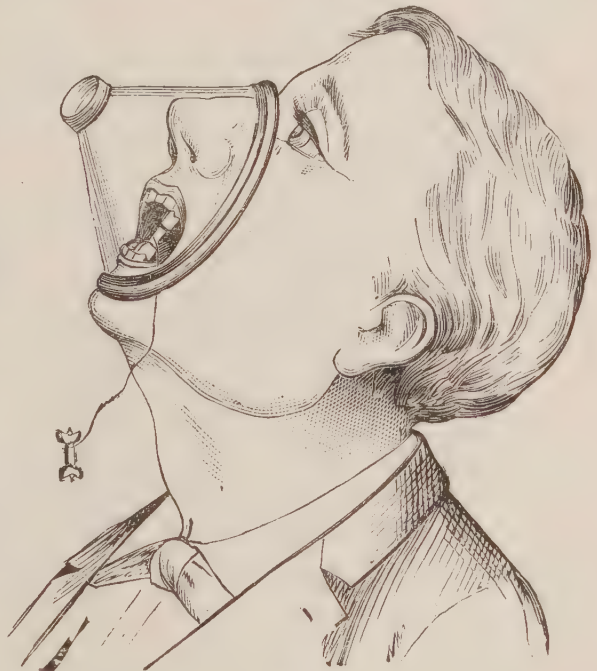


Fig. 3.



top of the vulcanite face-piece. This last also is supplied with an india-rubber cushion, which is inflated through the tube shown, and so made to fit the face accurately. It is claimed that the use of this inhaler lessens the quantity of ether used and obviates cyanosis. Dr. Carter, of Weymouth, has found the apparatus

useful. A great improvement in face-pieces is shown in Figs. 3 and 4. Fig. 3 depicts the usual Clover's face-piece made, at the suggestion of Dr. Silk, of celluloid. This is translucent and enables the administrator to see his patient's countenance throughout the administration. It is also capable of being thoroughly and perfectly cleansed after use. Accurate apposition is afforded by a removable rubber cushion. The same principle has been applied

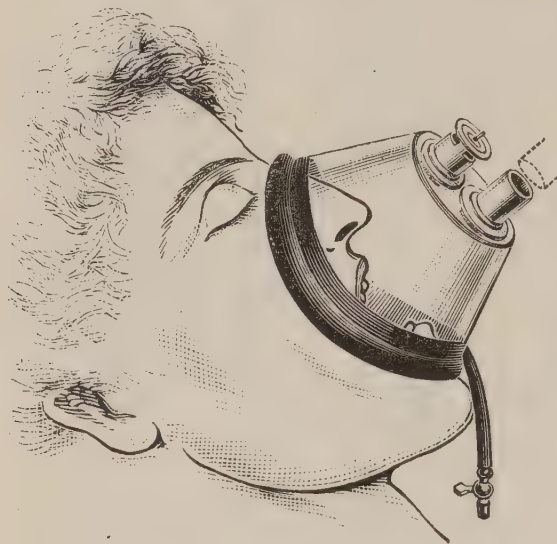


Fig. 4.

by the Dental Manufacturing Company to face-pieces for giving nitrous oxide gas, and their face-piece is given in Fig. 4. Dr. Silk has had the Rendle's mask (Fig. 5) made in the same way of celluloid. Dr. Vajna's excellent contrivance for the exhibition of chloroform is made of glass, and also permits of the full inspection of the patient's face throughout the whole period of chloroformisation. It consists of a neatly finished glass mask, which fits over the mouth and nose and is provided with a lip guarded by an india-rubber band. The upper surface has a diaphragm of permeable material—flannel or what not—stretched drum-head fashion over it. It is arranged by a band and can easily be replaced if soiled. The chloroform is poured or dropped upon this, and by a simple contrivance is prevented from dropping upon the face. A "rose" of flannel is also provided, which,

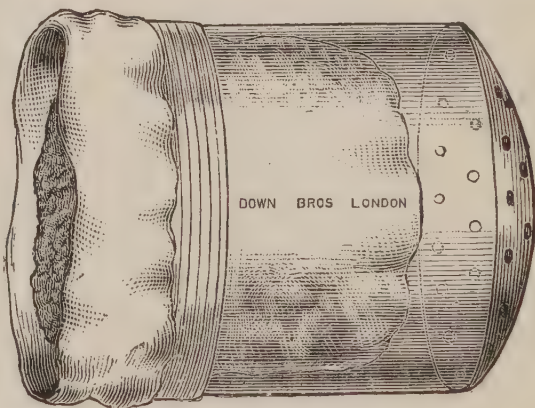


Fig. 5.—Rendle's Mask.



when placed and attached immediately below the flannel, allows of a comparatively large quantity of the anæsthetic being poured upon it. It is designed for use when the inhaler is employed for the exhibition of ether. Dr. Vajna believes his mask will be found of service not only for chloroform, but for ether, pental, or the bromide of ethyl. In the employment of these translucent inhalers it is of importance to remember that the clouding of the celluloid or glass can be prevented by smearing these substances with a weak watery solution of glycerine.

# GENERAL SURGERY.

BY WILLIAM ROSE, M.B., B.S., F.R.C.S.,

*Professor of Clinical Surgery in King's College, and Senior Surgeon to King's College Hospital, etc.*

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## I.—GENERAL METHODS.

*The value of antiseptic methods.*—**C. B. Lockwood** (*Brit. Med. Journ.*, Jan. 27, 1894) gives a further report of great interest upon the various means of securing asepsis of the skin of the patient, the hands of the surgeons, and of the towels and sponges used during an operation. (1) As to the *skin*, many plans of disinfection were employed with very varying results. In all, twenty-one cases were experimented with. Of these, seven only were successful, as indicated by removing a portion of skin at the time of operation, and dropping it into nutrient broth, thus allowing any organisms present to develop; but in only six of the seven cases did healing occur without suppuration. In the remaining fourteen the skin remained incompletely sterilised, but nine healed by first intention. The reagents employed, after washing with soft soap and water and ether, were watery and glycerine solutions of carbolic acid, and solutions of both perchloride and biniodide of mercury in water, spirit, or glycerine. The best results were, on the whole, obtained by the glycerine applications, but none of the methods employed were absolutely successful in sterilising the skin in every instance, although with all of them a considerable percentage of successful healing of the wounds was obtained. Certainly the experiments bring two facts into great prominence—(a) the extremely resistant nature of the organisms, and (b) the efficient protection afforded by the germicidal action of the tissues. The practical outcome of the experiments here recorded amounts to very little, and there is no amelioration suggested to one's own method of purifying the skin, viz., by shaving and efficient scrubbing with soap and water, followed by ether or turpentine, if considered necessary (*i.e.*, if the skin is coarse and greasy); the part is then thoroughly washed with 1 in 20 carbolic solution, and an antiseptic dressing, soaked in 1 in 40 carbolic, applied for a

few hours. More vigorous applications than the above are likely to do harm by irritating the skin and removing the cuticle.

(2) As to the *hands*, great importance is attached to the condition of the nails, which cannot be satisfactorily sterilised, and hence must be kept cut short. Lockwood recommends that after washing and scrubbing with soft soap and water, the hands should be immersed for a minute in a 1 in 1,000 solution of sublimate in rectified spirit. The writer of this article merely employs thorough cleanliness, and dipping the hands in a 1 in 20 carbolic solution prior to operation, allowing it to act for a few minutes, and using only a 1 in 40 solution subsequently. His results, as regards asepsis, are quite as satisfactory as those of surgeons who employ more elaborate methods.

(3) The disinfection of *towels*, by dipping them in carbolic solutions, has been shown by Lockwood to be most defective, only one out of four towels which had been soaked in 1 in 20 carbolic solution for two hours being aseptic. From the others, several organisms were obtained. When, however, the towels had been steamed in a steriliser for half an hour, the precaution being taken of unfolding them, so as to ensure a more equal action on the fabric, an aseptic result was always obtained. It seems advisable that this method should be adopted, the towels, of course, being subsequently dipped in carbolic lotion when in use.

(4) As to *sponges*, it is recommended that they should be well washed in water, and then soaked for some hours in a solution of washing soda (*3i ad Oi*); next, they are again washed in sterilised water (100° F.), and soaked in a sulphurous acid lotion (1 in 5). Finally, they are wrung dry, and kept in a 1 in 20 carbolic solution, which must be changed at least once a fortnight. By such means absolute asepsis was obtained. At King's College Hospital we always adopt a similar procedure, except that the sulphurous acid lotion is not employed.

The criticisms I have ventured to make concerning the above experiments are a reflection of the remarks made by **Sir Joseph Lister** in his address to the students and graduates of Glasgow University (*Glasgow Med. Journ.*, June, 1894). He pointed out how the former elaborate methods, based on the idea that atmospheric germs were necessarily harmful, had been simplified by the discovery that this was not the case, and he emphasised the fact that absolute sterilisation of the hands of the surgeon and skin of the patient were also not essential for gaining the primary union of wounds. The introduction of "gross dirt" was stated as the cause of sepsis, and illustrations of common errors in treatment were given. Altogether the address only adds emphasis



to the position so long maintained by its author, that in carbolic acid we have an agent which, if properly applied to skin of patient, hands of surgeon, instruments, surroundings, etc., suffices, not for absolute sterilisation, but for enabling the surgeon to obtain rapid and safe healing of a wound. Of course, other factors, such as drainage, rest of the part, suitable dressings, etc., must be considered; but it may be stated as a certainty that if suppuration follows a wound made in previously sound tissues, some gross and usually preventible error has been made by the surgeon or his assistants.

The same statement, in effect, is made by **Watson Cheyne** in his recently-published work on the "Treatment of Wounds, Ulcers, and Abscesses" (Young J. Pentland, 1894). The author details the methods he employs in the treatment of these conditions, and after repeating Lockwood's experiments as to the skin, etc., he finds that, as a rule, sterilisation can be obtained, and hence concludes that the results described above must be due to errors of observation.

*The sterilisation of wounds*, especially those left by the removal of tuberculous foci, either by scraping or excision, has been dealt with by **Phocas** (*Gaz. des Hôpitaux*, Feb. 22, 1894). The idea of using heat has long been known, and Ollier has used the thermocautery for such a purpose for some considerable time. Phocas experimented with boiling water and oil, and found that the latter agent does much more harm to the tissues than the former. If a pledget of wool is dipped in boiling water, and carried to a wound, the temperature falls to 70° C. in five seconds, and this may be freely applied to a raw surface without causing sloughing, even where important vessels and nerves are exposed, although in such cases it is wiser not to employ such a high temperature. The skin, of course, should be thoroughly protected. The author of this paper very much doubts the efficacy of such a procedure, and, where it is desirable to sterilise a tuberculous wound, much prefers the use of pure carbolic acid, or of chloride of zinc (grs. 40 ad ʒi), the dressings applied subsequently being well impregnated with iodoform.

*The effect of iodoform on the tissues* has been fully investigated and discussed by **Van Stubenrauch** (*Deut. Zeitschrift f. Chirurgie*, 1893, B. xxxvii., Hf. 5 and 6), and the conclusions arrived at are as follows:—1. Iodoform has no true germicidal power, and but little inhibiting effect, the bacilli of anthrax and tubercle being alone influenced in this way. 2. It has no specific anti-tuberculous effect; for, although in pure cultures of the organism iodoform arrested the growth, yet when in contact with it in

the body of an animal, it had no power of destroying either the growth or the activity of fully virulent bacilli. The beneficial effects of the drug on tuberculous processes are probably due to its action on the tissues, and not to any specific bactericidal properties. 3. The local effects of iodoform are mainly due to its decomposition, which can be brought about out of the body in many ways, or in the body by the influence of the toxins produced by bacterial activity. Hence in septic wounds this process readily occurs, iodalbumins, and other compounds of iodine, being produced, some of which act locally, whilst others are readily absorbed, and may produce general toxic results. A protracted iodine effect, then, is the result of this agent. 4. Iodoform, when decomposed, acts on the tissues in such a way that degeneration, usually fatty, takes place in glandular epithelium and in pathological neoplasms, especially if of the granuloma type. On tuberculous material active decay of the epithelioid cell masses is hastened on, whilst the more resistant structures are prepared for a change into healthy tissue.

*The treatment of erysipelas by thiol* (an artificial ichthyol, free from unpleasant smell) has been carried on by **Rüdneff** (*Meditzinskoïe Obozrenië*, No. 13, 1893). The affected parts in fifteen cases (fourteen on the face, and one on the leg) were painted over five times daily with a 20 to 40 per cent. aqueous solution until the fever ceased, the application being also extended over the neighbouring healthy tissue. This was combined with the administration of 10 grains of calomel internally on admission, 10 grains of quinine twice daily when the fever ran high, and of 10 or 15 grains of camphor in an emulsion daily. In three cases the disease was cut short in twenty-four hours, and in eight others in two to four days. A 20 per cent. solution was less satisfactory than the stronger, relapses occurring. One of the objections to the treatment is the expense of thiol, and hence Rüdneff only recommends its use for hospital patients in those cases where painting the parts with perchloride of mercury solution (1 to 1,000 or 500) has failed.

*The treatment of inoperable carcinoma by pyoktanin.*—**Willy Meyer** (*Annals of Surg.*, Nov., 1893) fully discusses this subject, quoting cases of his own and others, and comes to the following conclusions:—That such treatment is, as a rule, palliative, and not curative, although in rare instances a cure may result. Hard malignant tumours are more amenable to such treatment than soft, and those of the soft tissues more than those arising from bones. Disseminated carcinoma (*C. en cuirasse*) is no object for such treatment. The most complete asepsis is essential; and

without this the treatment is unjustifiable, as a rapidly fatal result from acute or chronic sepsis is likely to follow. As to the *technique*, a well-made and effective syringe holding 2 drachms is employed, with various straight or curved needles of not too small calibre, which are sterilised by boiling and kept in alcohol. A 1-300 solution is used, and 3 or 4 drachms injected slowly and carefully, so as to diffuse the substance as evenly as possible throughout the mass, the main artery to the part having also possibly been tied as a preliminary. It may be injected both into the spreading margin and into the tumour substance. If too much of the solution is injected into any one part, the tissues there rapidly break down. Malignant ulcers are treated by thoroughly cleansing, and then either dusting on the pyoktanin, or rubbing it with a pencil made of the dye. The needle must *never* be inserted through the ulcer, as sepsis is very likely to be thus conveyed.

The main *subjective* effects are claimed to be an almost immediate cessation of pain, and a gradual restoration of the function of the part, mainly as a result of this. *Objectively*, there are but few general symptoms, but occasionally nausea, headache, malaria, and a little pyrexia may be met with, the latter possibly due to imperfect asepsis; the urine is usually coloured light green or blue. Locally, ulcerated surfaces soon become cleaner, and may granulate, or even cicatrise; whilst subcutaneous tumours may become swollen and œdematous, or may break down with or without perforation of the skin. In the former case, if asepsis is maintained, the punctures soon close, and lead to no harm. This aseptic necrobiosis is probably due to the direct action of the dye on the cells, which are coloured by it, and so destroyed; and the tissue so acted on is absorbed, and thus shrinking of the tumour mass induced.

*A new method of using cocaine for local anæsthesia.*—Krogius (*Centralbl. f. Chir.*, No. 11, 1894) bases his plan on the fact that cocaine, applied near to the branch of a sensory nerve, causes anæsthesia over the greater portion of the area to which it is distributed. To attain this object, the needle is passed transversely across a limb, and not longitudinally: or the injection is made along the nerve trunk. Thus, to anæsthetise the little finger, the cocaine is placed beneath the skin over the ulnar nerve at the back of the elbow. A weak solution (2 per cent.) is employed. The maximum anæsthesia is reached in about five minutes, and the effect lasts fifteen minutes. Two hundred minor operations are said to have been performed with safety and success at Helsingfors, the precaution being always adopted



of keeping the patient subsequently in the recumbent posture for a quarter of an hour.

In order to overcome the toxic effects of the drug when used hypodermically, **Gauthier** (*Gaz. des Hôpitaux*, 1893, No. 108) recommends the addition of 20 drops of a 1 per cent. solution of nitroglycerine to 10 c.c. of a 2 per cent. solution of cocaine. He has used it now for two years, and has never seen any toxic symptoms, although he has administered as much as 12 grains of the drug.

*A danger of the elastic tourniquet*, as used so frequently nowadays for exsanguinating a limb, has been pointed out in two or three communications to the *Lancet* (Aug. 4 and 11, 1894). Several cases of paralysis of the muscles of the arm and hand are described as having been caused by the use of elastic tubing for this purpose. This danger has been long recognised at King's College Hospital; and, as a general rule, the tubing is only used for the lower limb, whilst a broad elastic bandage is applied to the upper. By this means the pressure is more evenly diffused over the nerves, which in the upper limb lie very superficially, and no harm results. It is probable that some diathetic condition—*e.g.*, syphilis—is an important element in the causation of paralysis in such cases. The author of this paper only recently had an instance of this in the case of a syphilitic patient, whose right arm rested on the edge of the operating-table during the performance of colotomy; the ulnar nerve was pressed upon, and troublesome paralytic symptoms resulted.

### **Treatment of the guinea-worm.**

**Émily** (*Archives de Méd. Nav.*, June, 1894) reports the results of his treatment of 105 cases of guinea-worm by injections of perchloride of mercury (1 in 1,000) into or around the parasite. It will be remembered that the *Dracunculus medinensis* develops in the subcutaneous tissues, and when mature the female projects its head through the dermis, and a bulla forms around it, which, on bursting, leaves an ulcer. The uterus, which is enormously distended, contracts and expels the ova from the mouth of the parasite, and hence it is evident that the old plan of treatment of winding the guinea-worm round a piece of stick or plaster day by day is calculated to increase the trouble by forcing back the uterine contents, and causing them to be expelled by rupture into the subcutaneous tissue, diffuse abscess following. Émily suggests that the best method of dealing with them is to cause the death of the parasite by injecting a solution of corrosive sublimate into and around the assumed position of the guinea-worm if it is subcutaneous, leaving the dead tissue to be absorbed like a piece of

catgut; whilst if the head or body is projecting, he punctures and injects it, and finds that the whole worm can be withdrawn in a day or two. The results obtained were most satisfactory, most of the patients being well in three or four days; whereas treatment lasted for three or four weeks when the old plan was followed.

**The treatment of senile and diabetic gangrene** of the lower extremity is discussed by Landow (*Deut. Zeitschrift. f. Chirurg.*, Bd. xxxvi., p. 149), who is opposed to the latter-day suggestion of early and high amputations, as emphasised by Hutchinson in England, and Manteuffel, and Heidenhain in Germany. He records in detail eighteen cases which were treated in the Göttingen clinic during ten years, seven of which were of the pure senile type, due mainly to arterial sclerosis, and eleven were in diabetics. His treatment consisted in regulation of the diet, elevation of the limb and asepsis with incisions into inflamed foci. When the process became limited, amputation through sound tissues just above was undertaken, whilst when no line of demarcation formed, the limb was removed, usually through the leg, and only through the thigh in the worst cases. The results were as follows:—Two cases left hospital without treatment, one died of diabetic coma without operation, and one healed spontaneously, but in it the soft tissues were alone affected. The remaining fourteen were operated on. In six cases amputation through the foot was performed, and of these four healed by first intention; in two gangrene of the wound resulted, necessitating in one secondary removal of the limb through the lower leg, which did well. Four patients underwent primary amputation through the calf, and with only one failure, the patient dying. On *post mortem* examination, however, old caseous foci were found in the lungs, and also contracted kidneys. In four instances where amputation of the thigh was adopted, death ensued—in three from coma, and in one from collapse. These facts are exceedingly interesting, and indicate that a certain amount of discrimination is needed in recommending high amputation in cases of gangrene, due to diabetes or senile degeneration of the vessels. The majority of these patients were diabetics, and the experience of Landow is distinctly opposed to that of English surgeons who have recently written on this subject, viz., Godlee and Spenser. The practical outcome of this is that a very careful examination of the vessels should be made at all parts where they can be reached, both in the limb and elsewhere, so that some tolerably accurate idea may be obtained of their condition; and when they are fairly healthy and pervious, it may be wise not to undertake high amputations.

*Emphysematous gangrene of hand ; recovery.*—A. H. Mann (*Annals of Surg.*, Feb., 1894) records a case where a man was attacked by emphysematous gangrene of the hand, in which recovery occurred without amputation. Severe local and general symptoms were present, the third finger being green and insensitive, whilst crackling in the cellular tissue extended as high as the wrist. Long incisions were made through the gangrenous tissue, revealing that even the tendons were greenish and soft, and such were removed. The limb was placed in a hot bath of corrosive sublimate solution (1 in 1,000), and gradually the symptoms abated, and the patient recovered with a stiff though complete hand. Blood casts and albumen were found in the urine, both during and after the attack, suggesting that some old renal mischief existed, and this perhaps predisposed to the infection. Bacteriological examination revealed the fact that two organisms were present—the streptococcus pyogenes, and the bacillus *aërogenes capsulatus*. The latter organism has the power of developing gases in the tissues, either before or after death, and in the few cases recorded, in which its presence has been demonstrated, has given rise to a fatal issue from septicæmia associated with local cellulitic symptoms. Mann's case is one of the few (possibly the only one) in which a local infection with this organism has been successfully dealt with without amputation ; and the lack of general diffusion of the organism may have been due to the double infection.

It is also pointed out that clinically it is impossible to distinguish between the spreading gangrene caused by Koch's bacillus of malignant œdema, and that due to the bacillus *aërogenes capsulatus*. In both a rapidly progressing gangrenous cellulitis ensues, with or without putrefactive emphysema, together with grave symptoms of a septicæmic type. A table giving the characters and differences between the two forms of bacilli is also appended.

*Neuralgia in amputation stumps.*—Witzel (*Centr. f. Chir.*, No. 23, 1894) has again drawn attention to the fact that neuralgia occurring in amputation stumps is due, not merely to the formation of bulbs upon the ends of divided nerves—otherwise it must always ensue—but rather to such bulbs becoming adherent to the periosteum covering the ends of the bone, and thus being stretched on every movement of the adjacent joint. To prevent the occurrence of such pain, he recommends that the nerves should always be drawn well down and cleanly divided at as high a point as possible.

*Union of divided ureter.*—Howard A. Kelly (*Annals of Surg.*,



1894, i., p. 70) records an instance in which he successfully sutured a divided ureter by the method practised by Willer van Hook on animals, noticed in the "Year-Book of Treatment" for 1894, p. 214. The ureter was divided whilst performing a hysteromyomectomy, and after removing the uterus was united again by closing the lower end of the ureter and implanting the upper end into a lateral opening in the lower segment. Perfect recovery ensued.

*Double skin flaps for plastic operations.*—**Löwenstein** (*Verhandlungen der deut. Gesellschaft f. Chirurg.*, xxii. Kongress, 1893) suggests a method which he has employed for obtaining flaps lined on each side with skin for the repair of defects left in the cheeks by total removal of epitheliomatous growths. He raises a bridge of skin over the sternum between two vertical incisions, and turns in under this a cutaneous flap derived from the neighbourhood, and stitches the two raw surfaces together. A long pedicle was then cut in the direction of the neck by prolonging the vertical incisions. The lower end of the bridge, *i.e.*, below the double flap, was slowly divided in the course of the next fortnight, so as to cause all the nutrition of the flap to be derived from the upper end, and when free, it was twisted round and fitted carefully into the gap in the cheek, the edges of which had been previously pared and stitched *in situ*. The pedicle was slowly divided when firm union had been obtained; a good result followed.

## II.—DISEASES OF JOINTS.

*Application of dry heat in cases of chronic synovitis.*—**Willett** (*Brit. Med. Journ.*, June 16, 1894) has used and recommends an apparatus designed for this purpose by L. A. Tallerman, of 1 and 2, Chiswell Street, Finsbury Square, E.C. It consists of a closely-fitting copper cylinder, heated by gas, through which the limb passes, an air space of 1 inch being allowed all round, and the skin protected by layers of indiarubber sheeting and asbestos. The temperature is gradually raised until the patient experiences pain, when a safety door is opened, and the pain ceases. On closing the door, the temperature is again raised, and the patient can stand it a good deal hotter than before. This manœuvre is repeated again and again, until a temperature of even 300° F. has been tolerated. The relief given depends probably on the superficial hyperæmia induced, and the excessive perspiration, the limb emerging from treatment with a "boiled-lobster colour." In painful rheumatic joints the anodyne effect has been most marked.

*Bier's method of treating articular tuberculosis* has been very favourably commented on by several surgeons during the year. It consists in inducing venous congestion of the affected parts by applying a broad elastic bandage over a layer of lint or wool around the limb a few inches above the joint, tightly enough to compress the venous circulation, the distal segment of the limb being also firmly bandaged. The articular portion becomes congested and œdematous, but the patient in spite of this is encouraged to use the limb. **Mikulicz** (*Centralbl. f. Chir.*, No. 12, 1894), whilst acknowledging that the treatment has been too recently introduced to enable one to form an absolute opinion as to its value, yet considers that in certain instances it has proved very effectual. Eight cases are reported on, in five of which tubercular deposits were absorbed and the condition much improved, although some impairment of function, due to the extent of the disease, remained, and in one case amputation was needed for a similar reason. In the other three cases, apparently neither harm nor good was done. Mikulicz states that the method of action is not yet determined, but may arise as a result simply of the hyperæmia, or of the curative effect of the effused serum. He does not apply the bandage too tightly or continuously at first, and warns surgeons of the danger of causing muscular atrophy at and below the constriction if kept on too long. **Miller** (*Edin. Med. Journ.*, Feb., 1894) also writes in favour of this plan of treatment, but prefers intermittent to continuous pressure.

**Bier** of Kiel (*Archiv. f. klin. Chirurg.*, 1894, vol. xlviii., Hf. 2) also gives a detailed account of his own experiences. He states that the idea was suggested to him by an observation of Rokitansky and others that phthisis was rarely seen in patients whose lungs were congested as a result of heart failure, or that if present it often cleared up when such an occurrence ensued. He applies his method not only to the treatment of articular tuberculosis, but also to similar affections of the skin, testis, etc. He induces venous congestion in the latter organ by an elastic bandage placed as high up the cord as possible, whilst the skin is treated by the application of variously-shaped cupping glasses exhausted of their air. The treatment is either continuous or intermittent, in the former case œdema being the more marked effect, in the latter congestion. In the interrupted form, pressure may be maintained for from one to twelve hours daily. A period of three months is the least required; it may need, however, to be maintained for much longer. After a time the œdematous swelling disappears,

and the limbs regain a normal contour with perhaps a little thickening of the cellular tissue.

In reporting his results Bier deals with them under several headings. I. *Cases in which no external opening existed.*—A continuous progress to health occasionally resulted, *e.g.* (1) A lad, aged 16, with bad family history, and commencing disease of the left shoulder ; compression from Aug. 5 to Sept. 4, 1893, for twelve hours daily, and subsequently for a shorter time each day. All signs of disease gone by Sept. 8. (2) Woman, aged 33, with tubercular elbow, which had been present for a twelvemonth ; continuous compression from March 28, 1892, till June 14, 1892, and subsequently with intervals ; complete recovery, no difference between the two elbows being observed. Two other similar cases are given. More often, however, localised abscesses form as a result of the compression, with a certain amount of pain and fever. The treatment need not be discontinued on account of such an occurrence. Occasionally the abscess disappears spontaneously. He reports two cases in which the abscess was allowed to burst of itself ; free suppuration followed, and the discharge of caseous masses, but after a time this diminished, and a sinus resulted, which took months, or even years, to close. Such treatment was unsatisfactory, and hence he recommends removal of the pus through a fine needle by a hypodermic syringe, and the injection of a 10 per cent. glycerine-iodoform emulsion. Only a fine needle should be employed, as the tendency of the compression is to make any larger wound gape, resulting possibly in a sinus. Several cases are recorded of success following such treatment—*e.g.*, a shoemaker, aged 19, with tubercular disease of left knee-joint. Compression commenced June 10, 1893. A chronic abscess soon developed, and was punctured and injected three times in a fortnight. Another abscess burst on Aug. 5, but was soundly healed by Dec. 1. From Dec. 20 compression was only maintained at night, and by March 28, 1894, the knee was well, and functionally as useful as the other. He further points out the desirability of carefully watching the joint, so as to ascertain the earliest period at which an abscess can be detected, and then to puncture and inject it ; injection was successfully employed even in cases where a puncture did not prove the existence of pus, although localised thickening and pain suggested its presence.

II.—*In cases where an open wound was present* compression usually increased the discharge at first, but after a time it stopped, and healing resulted. A general improvement in the articular disease followed, although sometimes fresh abscesses



formed as indicated above. When secreting sinuses remained for a length of time unhealed, various other additional means were adopted :—(a) The sinus was firmly plugged, and the iodoform emulsion injected into the tissues around it ; (b) the compression is discontinued, and the sinus, if not connected with a large joint, injected with a strong solution of sulphates of zinc and copper (āā 8·5 per cent.) ; (c) the sinus is enlarged and scraped, and any sequestra present removed, the pressure being omitted in the meanwhile. Illustrative cases of each of these conditions are given.

Complications may arise from various sources, causing difficulty in the treatment, or even contra-indicating it :—(1) Congested joints are exceedingly vulnerable to septic influences, and several cases of septic arthritis needing amputation resulted. (2) Excessive growth of granulation tissue sometimes followed ; this is best treated by free removal with a sharp spoon, the compression being temporarily intermitted. (3) Where the disease is very extensive, and especially where the subcutaneous tissues are widely undermined and infiltrated, the treatment is absolutely contra-indicated, on account of the increased suppuration and discharge caused thereby.

### III.—AFFECTIONS OF BONES.

*The prognosis in cases of simple fractures* is usually stated to be exceedingly favourable ; but this, according to **Haenel** (*Deut. Zeit. f. Chir.*, xxxviii. 2, 3), can scarcely be considered the case. Thanks to the law regulating accident assurance amongst the working classes in Germany, he has been able to base his observations on 400 cases, and gives results which tend to show that the time required for the treatment of a simple fracture is much greater than is usually supposed, whilst the ultimate results are often very unfavourable.

Of one hundred and fifty-five cases of fractured femur, four died, and others were useless for statistical purposes. Only three were completely well in thirteen weeks, whilst of the remainder forty-three recovered completely, the average length of treatment being twelve months and fifteen days, whilst ninety-seven were rendered more or less lame and incapacitated from following laborious occupations. Moreover, the higher the situation of the fracture, the worse the results, only two cases of fracture of the cervix femoris recovering completely out of seventeen individuals affected, and that only after eleven and fourteen months' treatment respectively.

In one hundred and forty-two cases of fracture of the leg,

fifty-two were cured in thirteen weeks, whilst of the ninety remaining one died, and thirty were more or less permanently disabled. For the fifty-nine cases of delayed recovery the average length of treatment was sixteen months, whilst including all the cases in which recovery ensued, ten months is the average period.

Of thirty cases of fracture of the arm, eleven were well in thirteen weeks, whilst of the others ten recovered in an average period of twelve months and six days, and eight were permanently disabled.

Sixty-seven cases of fracture of the forearm were investigated, giving thirty-six complete cures in thirteen weeks, twenty-one delayed recoveries with an average period of treatment of sixteen months, and eight permanently disabled.

Making allowance for the exaggeration of symptoms, etc., owing to the obligatory nature of the assurance, one still cannot but be struck by the general tenor of these results, as indicating that the treatment of simple fractures is not so satisfactory as one might imagine, and as a practical outcome it is recommended that anæsthesia should be employed much more frequently in the adjustment of a fracture than has hitherto been the case, and also that means for maintaining the tone of the muscles involved should be adopted. My own experience, especially in connection with cases of fractured limbs occurring at hospital, as well as amongst the employes of the Brighton Railway Company, fully coincides with the statements above made as to the length of time before they are able to resume duty.

Lane, at a meeting of the Clinical Soc. (London), April 13th, 1894, arguing from the fact that the mechanical value of a labouring man who has suffered from an oblique fracture of both bones of the legs is reduced by the ordinary treatment of splints and prolonged rest by nearly 70 per cent. of his original value, recommends that all such cases should be treated by an anti-septic operation, which clears the ends of the bones, and secures them *in situ* after drilling suitable holes by means of plated steel screws. In the subsequent discussion the premisses upon which Mr. Lane based his suggestion were corroborated by Mr. Hulke and other speakers, although the obvious objection was also raised as to the danger of an indiscriminate adoption of such treatment by surgeons who are not capable of maintaining strict asepsis. We welcome, however, the recognition of the fact that there are certain fractures which in the hands of efficient men are best treated by an open operation, believing that repair is thereby more certainly established, and that many crippled limbs might thus be prevented. Especially in fracture-dislocations in

the neighbourhood of the elbow, and even of the ankle-joint, and in transverse fractures of the patella due to muscular action, is such a practice desirable. The bias against these operations, particularly those upon the patella, is still very great, but the record of cases such as those shown by **Ballance** (*Med. Soc.*, Lond., Jan. 22, 1894), combined with the experience gained at King's College Hospital and elsewhere, shows that the operation can be safely accomplished, and perfect functional results thereby obtained.

**McBurney** (*Annals of Surg.*, April, 1894) also reports a case of fracture of the surgical neck of the humerus, combined with dislocation of the head, in which all attempts at reduction failed, owing to the shortness of the upper fragment. An antiseptic incision was made, a hole drilled in the upper fragment, a hook inserted, and traction made in the direction required in order to replace the head of the bone, which was successfully accomplished. Where, however, the fracture involves the anatomical neck, excision of the upper fragment is desirable.

*The treatment of endosteal sarcoma* is admittedly variable in different regions of the body and in the different forms of the disease. Two clinical varieties may be recognised—the malignant and the benign. In the former the tumour not only distends the bone, but early breaks through it, becoming irregular in outline; amputation can alone be practised in such cases. In the latter the bone is only expanded by the myeloid growth, which does not invade the glands or periosteum, and hence, although amputation is needed as a rule in the lower extremity and in the humerus, in the forearm it may be possible to remove it by a limited excision, and in the lower jaw by scraping. **Clutton** and **Hulke** (*Clin. Soc.*, Feb. 3, 1894) were able to describe cases of this nature with successful results, although the growth had in one or two instances recurred and needed further operations. It was also pointed out that excision of the lower end of the radius should be accompanied by a similar removal of a part of the ulna, to prevent lateral deviation of the hand. If a gauntlet is subsequently applied, a very useful member may be obtained. **Von Bergmann** (*Deut. Gesell. f. Chirurg.*, xxii. Kongress, 1893) reported a case of myeloid sarcoma of the upper end of the tibia—which did not extend beyond the tuberosities, although breaking through the cartilage into the knee-joint—operated on by opening the articulation, and removing 10 cms. of the tibia and a slightly less amount of the fibula, the end of which latter bone was pointed so as to fix it into a hole previously made in the cut end of the femur. The patient was subsequently able to walk about



with only a thickened sole, and there was no recurrence a year later. **C. Fricke** (*Centr. f. Chirurg.*, 1893, No. 47, p. 1047) reports a case of primary myeloid sarcoma, involving the temporal bone and part of the petrous in a little girl aged four years. It probably started centrally, and on operation was found to be closely attached to the dura mater. It was, however, satisfactorily removed, and there was no sign of recurrence two years later. The same author has had three similar cases of perforating sarcoma of the cranial bones, where a cure has been maintained after two years. **Nicolaysen** (*Norsk Magazin f. Lægevidenskaben*, pp. 1217-1219) also reports a case of successful removal of a myeloid sarcoma of the cranial vault, originating probably in the diploë. A tumour about the size of a child's fist, and tensely elastic, pulsating and immovable, was noticed in the right temple, growing apparently out of a hole in the bone. There were no paralytic or spasmodic symptoms, although the patient was dull and complained of persistent headache. The tumour, together with the infiltrated temporal muscle and bone, to the extent of a centimetre all round the growth, was removed, and found to be free from the dura mater, which was distinctly depressed and pushed inwards. The case did well.

#### IV.—SURGERY OF THE SPINE AND SPINAL CORD.

**Wm. Thorburn** has during the year delivered a series of valuable lectures at the College of Surgeons of England on this subject. In the first lecture he discussed the subject of *laminectomy for injury*, stating that the mortality, as indicated by Chipault's tables, amounted to 48 per cent., whereas in cases left alone the death-rate was 80 per cent., according to Gurlt. The conclusions he arrives at are as follows:—“(1) In all compound fractures, operate; (2) in fractures of the spinous processes and laminae, where there is evidence of injury to the cord, operate; (3) in simple fractures and dislocations of the bodies of the vertebræ, if there is a reasonable probability that the injury is due to hæmorrhage, operation is advisable; but in all other cases of this nature we cannot hope to do good save where the injury is below the level of the first lumbar vertebra. In such cases, however, laminectomy is an eminently valuable surgical procedure.” It is also pointed out that the diagnosis of the exact cause of the spinal lesion is almost impracticable, although it may be remembered that if due to displaced bone, the symptoms come on immediately, and the displacement may be evident, whilst if due to hæmorrhage the onset of paralysis is usually somewhat delayed. If, however, the bleeding results from a tear of the

theca or spinal membranes, the effused blood may gravitate to the bottom of the canal, causing a paraplegia, which extends from below upwards. In such cases Thorburn recommends a laminectomy at the site of injury, and a paracentesis of the meninges after Quincke's method, or another laminectomy lower down if need be. (4) Where the cord has been compressed by a fracture-dislocation, no good can come by operating, inasmuch as the maximum injury has been inflicted, and regeneration of a completely damaged cord is impossible. If only partially divided, a certain amount of improvement may follow the vicarious conduction of impulses. Hence in penetrating wounds dividing the cord, it is useless to operate, or even to attempt to stitch up the wound in the pia mater. Harm may indeed result from such treatment, and may cause retention of discharges. (5) Where the nerve roots have been divided, as in the *cauda equina*, the best of results may follow laminectomy and suture of the divided ends. Tuffier has recorded a case of intraspinal suture of the first two lumbar roots after their division by a gunshot injury with a perfect recovery.

Roberts (*Med. News*, March 10, 1894) also discusses the propriety of performing laminectomy in severe spinal injuries, *apropos* of four cases in which it had been undertaken at some late period after the accident. The results were most unsatisfactory, as was to be expected; but in spite of such experience, he thinks the operation should always be undertaken, so as to give the patient every possible chance of recovery. Early operation is, however, most desirable, and the author suggests that if any doubt as to the existence of a fracture exists, an antiseptic incision is always justifiable, in spite of the hæmorrhage and shock which must accompany such a proceeding.

Caselli (Rome Congress, *Brit. Med. Journ.*, April 21, 1894) recommended the more frequent use of laminectomy in lesions or diseases of the spinal cord and its membranes, stating that the bony structures might be replaced, and would readily re-unite without deformity or bad effects, giving illustrations of the value of such investigations.

Discussing the value of *laminectomy in the treatment of spinal caries complicated with paraplegia*, Thorburn (*Brit. Med. Journ.*, June 30, 1894) points out that the paralytic state is usually due to a growth of granulation tissue, which may be caseous or not, accompanied by an irritative non-tubercular pachymeningitis, which leads to the compression of the cord against the laminae. The cord is usually found small and firm, but is occasionally swollen and œdematous. More rarely paralysis arises suddenly

from fracture of the carious spine, or bursting of an abscess into the canal. It is stated as a general fact that the prognosis of such cases left to themselves is by no means bad, although prolonged rest and treatment are needed, and Myers' statistics are quoted showing that out of 218 cases of caries with paraplegia,  $3\frac{1}{2}$  per cent. died of intercurrent maladies, 55 per cent. recovered under observation, and the remainder were still under treatment or had been lost sight of. Hence, *primâ facie*, laminectomy is not called for in every case of the disease, and the fact that relapses are frequent after palliative treatment does not invalidate this opinion, since they are also met with after operation. Lane's successful cases are referred to, but with the remark that "we can hardly doubt, having regard to our general clinical experience, that no small proportion would have recovered without laminectomy." The special *indications* for operation are then discussed: (1) Where there is a steady progress in the symptoms, in spite of favourable conditions and treatment; (2) where symptoms exist which definitely threaten life, *e.g.*, chest complications or septic cystitis; (3) where, in spite of prolonged rest, the symptoms continue, depending possibly on cicatricial developments outside the meninges compressing the cord (peri-pachymeningitis)—Macewen and others have met with such cases; (4) where the disease is limited to the posterior parts of the vertebræ; (5) where severe pain is exhausting the patient; or (6) generally in children rather than in adults. The operation is *contra-indicated*, according to Macewen, in cases where pyrexia, due to general tubercular disease, and not to a septic cystitis, is present, or where general meningitis exists.

Attention is also drawn in these lectures to the condition known as *spina bifida occulta*—a condition in which there is a defective development of the vertebral arches usually in the sacral region associated with excessive overgrowth of the cutaneous appendages, hairs, etc., and subcutaneous tissues over the spot. A form of lipoma results, which may extend deeply and compress the *cauda equina*, giving rise to paralytic and trophic symptoms. Such cases may be freely and beneficially dealt with by an operation, and illustrations are given.

*Removal of tumours of the spinal cord.*—Ransom and Thompson report a case of removal of a sarcoma growing from the spinal dura mater (*Brit. Med. Journ.*, Feb. 24, 1894), which was unfortunately fatal. One of the interesting points in the case was that there was but little pain, and that the tumour was situated, as is almost always the case, at or above the highest area of anæsthesia or hyperæsthesia. Wyeth (*Annals of Surg.*,



August, 1894) records a successful case of removal of a cheesy-looking mass from the cord, and several cases of laminectomy for trauma. He recommends gnawing away the laminae at first with a round rongeur, until sufficient room is obtained for inserting the more rapidly-cutting fenestrated instrument. **Turney and Clutton** (*Lancet*, 1894, i. p. 398) report a case of removal of a myxomatous growth from the lower dorsal region of the cord, in which a fatal issue from diffuse septic meningitis followed. The *post mortem* examination revealed that in all probability, apart from this accident, recovery would have ensued.

*Subluxation of the vertebral column.*—**Baumüller** (*Münch. med. Woch.*, April 24, 1894) reports a case of partial luxation in the lumbar region, the result of a severe injury, which caused some degree of paraplegia, especially felt in the bladder and rectum. A depression was found over the second lumbar spine. This was reduced under chloroform by extension towards the head and manipulation, the counter-extending force being applied from the bent knee. The successful issue was indicated by a distinct snap. The patient was encased in plaster-of-paris, and the paraplegia almost entirely disappeared in the course of a twelvemonth. Nine other cases of luxation in the lumbar spine are referred to, but in only one had reduction been attempted, and in that also with a successful issue.

## V.—SURGERY OF THE CRANIUM AND CRANIAL NERVES.

*Repair of a bony defect of the cranium.*—**Hans Kehr** (*Centr. f. Chir.*, 1893, No. 48) reports a most interesting case of a man aged 27, who had been previously injured by a blow on the head, causing a compound depressed fracture, eight cm. long and five cm. broad, over the upper part of the left parietal bone. This was followed by subcranial suppuration, and symptoms of compression, associated with paralysis of the right arm and right side of the face. The depressed bone was chiselled away, the pus evacuated, the dura mater opened, and a teaspoonful of pus removed from the surface of the brain. The portions of bone were replaced, but did not unite, and were taken away in a condition of necrosis some months later. The wound healed, but epileptic symptoms of a Jacksonian type followed, associated with partial paralysis of the right arm, and defective power of speech. An operation was determined on, with a view, not only to remove all diseased tissue, and thus relieve pressure on the brain, but also to fill in the bony defect according to the Müller-König method. The whole of the cicatricial tissue covering in the opening in the

skull was removed, the surface of the brain exposed, and the margins of the osseous defect refreshed with a chisel. A flap of skin, adapted in shape and size to the defect needing closure, was then marked out, and, together with a suitable portion of the outer table of the cranium, dissected up, a broad pedicle being left posteriorly. The prepared bone was carefully fitted into the opening and the flap fixed by sutures; subsequently the raw surface left by the removal of the flap was grafted by Thiersch's method. Complete union followed, together with the loss of the epileptic symptoms, and improvement in the paralysis of the arm.

*Traumatic cephal-hydrocele.*—**Eigenbrodt** (*Beit. z. klin. Chir.*, xi. 2) discusses this condition in an able paper, based on forty cases collected from various sources. He calls the condition a hydrencephalocoele; but as this title is rather applied to congenital conditions in our English text-books, I have not used it here. The condition, as is well known now, results from a fissured fracture of the skull occurring in infancy, involving the dura mater, and thus allowing of the formation under the scalp of a pulsating swelling, which contains cerebro-spinal fluid, and communicates either with the subarachnoid space, or with one of the horns of the lateral ventricle in the severer cases. As to the *prognosis*, a few cases remain in a chronic state, without influence apparently on the individual; several cases have been spontaneously cured either by closure of the opening in the dura mater, or by the growth of the skull obliterating the neck of the sac; but occasionally they continue to increase in size, and finally rupture with a fatal result. The *treatment* of these cases is not at all satisfactory, puncture, injection of iodine after puncture, and other means having been tried without much success. Eigenbrodt recommends incision into the sac, and the closure of the opening in the skull by a flap of skin, subcutaneous tissue, periosteum, and a layer of bone derived from the outer table. Slajmer has had a successful case (*Wiener klin. Wochenschr.*, 1893, vi. 213-216). Such treatment, however, is scarcely feasible during the earliest years of a child's life, as the shock is considerable, and the cranial vault so thin as to prevent a lamina being removed from it without perforation.

*Drainage of subdural space for acute meningitis.*—Case reported by **Ord** and **Waterhouse** (*Med. Soc., Lond.*, March 5, 1894), supposed to be tubercular in nature, but probably only simple, in which, prior to the supervention of coma, a trephine incision was made into the cerebellar fossa of the occipital bone, and a little fluid withdrawn. A drain-tube was left in, and the child did well. In the subsequent discussion the importance of operating before coma has supervened was emphasised by all surgeons,

but as to the site of operation much difference of opinion existed. **Walsham** stated that he always made the opening through the cervical vertebræ; whilst **Pasteur** stated that at the Middlesex Hospital the lumbar spine was usually opened. **Ord**, however, maintained that the opening should be made above the aperture of communication between the cerebral and spinal spaces, since this was often blocked by inflammatory materials.

*Craniectomy for microcephalic idiocy* has formed the subject of several papers, and the actual and final value of the method has been fairly ascertained now that sufficient time has elapsed. It appears that as a rule a certain amount of improvement ensues immediately after the operation, but this is not maintained, and it is quite possible that the final result of the operation is a diminution, and not an enlargement, in the size of the cranial cavity, owing to the fact that great sclerosis and contraction take place along the lines of the wounds. This fact, pointed out first by **Bourneville**, was especially emphasised by **Jacobi**, who records a case in point where the child died sixty-seven days after operation, and much bony deposit was found along the line of the wound (*New York Med. Record*, May 19, 1894). He has collected thirty-three cases operated on, and comments on the results gained. Of these, fourteen died soon after the operation, whilst nineteen recovered; of the latter, two were much improved, eight showed slight improvement, whereas the others were uninfluenced. **Keen**, who had operated on fourteen of the above cases, considered that although the mortality was great, and the improvement to be expected only moderate, yet it was possibly worth the risk. **Wyeth**, who was responsible for eight cases, considered the operation so dangerous as to be justifiable only in exceptional circumstances. The same opinion was expressed by **Postempski** in the discussion on cerebro-spinal surgery at the Rome International Congress. His opinion was based on twenty cases of craniectomy, and he stated that "the results were very disappointing, and the operation appeared to be of little benefit." **Mynter** (*Annals of Surg.*, May, 1894) records five cases, in which no good resulted.

*Trephining for tumours, etc.*—In discussing the present-day aspects of this operation as required in surgery, **Lucas-Championnière** (*Rome Congress, Brit. Med. Journ.*, 1894, i. p. 856) stated that over-refinement in localisation prior to the operation was not to be commended, as it is much better to make a large aperture in the skull. In order to be able to accomplish this, a large flap should be turned down, and not merely a crucial incision made over the spot where the trephine is first employed.



In performing this operation I always mark the skull with an awl inserted through the scalp over the site of election for trephining, then turn down a large flap, and apply a two-inch trephine. By this means plenty of room is gained for the subsequent manipulations, and the wound can be enlarged, if necessary, in any direction.

Many cases have been reported, during the year, of operations on the skull and brain, but none of them call for very special notice. Speaking of cerebral tumours, however, and the possibility of removing them, **Byrom Bramwell** pointed out—(1) the very limited scope of the operation, since in twenty-eight cases he had examined *post mortem*, in all save one no operation for total removal could have been performed; (2) that, in spite of this, considerable relief might follow an exploratory operation by relieving tension—a statement which the writer of this article can fully bear out; in such cases the formation subsequently of a hernia cerebri or encephalocele under the scalp, bearing evidence of the relief of intracranial pressure—a condition associated with diminution of the coma and pain in the head; and that (3) the symptoms were often so vague and misleading as utterly to prevent the localisation of the lesion.

*Trephining for traumatic epilepsy* must be considered as on a very different footing to the above, as most excellent results are constantly being reported. Thus **Mynter** (*loc. cit.*) records five cases operated on, with four successes; and **Carline** (*Brit. Med. Journ.*, Feb. 24, 1894) records a similar successful case. In commenting on it he again emphasises the fact as to the need of early operation in all cases of even slight simple depressed fractures in the adult. There can be no doubt as to the correctness of this opinion, the patient running much more risk from a depression being left unrelieved than from a carefully carried out antiseptic operation.

*The surgical treatment of trigeminal neuralgia* is still being followed up by surgeons, in the belief that by this means only can effective relief be given to the sufferings of the patient; and the general opinion which guides and influences their methods of action is that operations on the distal segments of the nerve are comparatively useless to give more than a very temporary respite from pain, and hence bolder attacks are made on the roots of the nerve. In fact, Ferrier goes so far as to state that he considers the only hope of a permanent cure lies in the thorough division of the nerve on the cerebral side of the Gasserian ganglion, removal of which, in such circumstances, he would consider an unnecessary and even dangerous addendum to an operation already fraught with considerable risk to the individual.

*Division of the supramaxillary trunk at the foramen rotundum.*  
—**Rose** (*Lancet*, March 17, 1894) publishes two cases of section of

the second division of the nerve at the foramen rotundum, in one of which the third division was divided in addition, and Carless (*Med. Press*, Aug. 22, 1894) has operated on a similar case; in all three the results up to date have been most satisfactory. The operation employed was that known as the Braun-Lossen method, which consists in dividing the zygoma and turning it, together with the masseter muscle, downwards and backwards. The temporal tendon is then drawn aside posteriorly by a retractor, exposing the pterygo-maxillary fissure, which is widened by removing a projecting tubercle of the great wing of the sphenoid with a chisel. The internal maxillary artery is secured by ligature as it enters the fissure, and an aneurism needle passed through the fissure into the spheno-maxillary fossa easily hooks up the trunk of the nerve as it emerges from the skull, and about three-quarters of an inch of it can be removed. Rose points out that this plan of operating is better than the methods suggested by Horsley or Carnochan, in that the wound can be easily maintained in an aseptic state, as the antrum is not encroached on; also that the scar is much less evident. In Carless's case the coronoid process was so large and prominent that its division, together with retraction upwards of the temporal muscle, was absolutely essential in order to gain access to the fissure.

*Removal of Gasserian ganglion.*—Keen and Mitchell (*Trans. Phil. Med. Soc.*, Feb., 1894) record a case operated on by the Krause-Hartley method, with a good result, although the patient was a bleeder, and the later stages of the operation could not be undertaken until hæmorrhage had been stayed by plugging the wound, caused by the separation of the dura mater from the middle cerebral fossa, for three days by gauze, 222 square inches of which were employed. A successful result followed. Commenting on the operation, Keen writes as follows:—"The first case was operated on by Mr. Rose in 1891 (*Brit. Med. Journ.*, 1892, i. p. 261). Since then I have been able to collect forty cases operated on by the two methods, and the result thus far is as follows:—Of the forty cases six have died and thirty-four recovered. In none of them has there been any return thus far reported, excepting a partial return in one of the earlier cases of Mr. Rose. In no other case than his first one has there been the loss of an eye; and neither Tiffany, in the four cases he has reported, nor I, took the least precaution for the protection of the eye, by preliminary temporary suturing of the lids. The results thus far seem to encourage us very much. If the removal of the ganglion should in time prove to be a final cure in cases of tic douloureux,

my own opinion would be that it should be the *first* operation recommended for severe cases, provided that time and experience enable us to diminish the present relatively large mortality. If, however, the pain should return in any considerable proportion of the cases, then, as this is the final and terminal operation, I would certainly advise my patients hereafter to have repeated peripheral operations done, gradually approaching the centre; and the removal of the ganglion, should the pain return again and again, should be the *last* operation. In other words, if the operation of removal of the ganglion proves to be an unqualified success and its dangers are lessened, we should begin with that and not waste time with peripheral operations. If it is only, like the peripheral operations, a temporary relief, then we should begin at the periphery, and work towards the ganglion by as slow steps as it is possible to take.

“I append a table of all the operations I have been able to collect up to the present time.”

TABLE OF OPERATIONS FOR REMOVAL OF GASSERIAN GANGLION.

Author.	Reference.	Recovered	Died.	Total.
Rose <sup>1</sup>	British Medical Journal, 1892, i. 261	5	...	5
Rose <sup>1</sup>	Lancet, 1892, ii. 953	1	1	2
D'Antona <sup>1</sup>	British Medical Journal, 1893, i. 81	1	...	1
Park <sup>1</sup>	Trans. Amer. Surg. Assoc., 1893, vol. xi. 238	2	...	2
Andrews <sup>1</sup>	Journ. Amer. Med. Assoc., Feb. 18, 1893, 180	3	1	4
Krause <sup>2</sup>	Annals of Surgery, Sept., 1893, 362	5	...	5
Roberts <sup>2</sup>	Proc. Philadelphia Co. Med. Soc., 1892, 490	1	...	1
Lanphear <sup>1</sup>	Pacific Medical Journal, 1892, xxxv. 647	1	...	1
Hartley <sup>2</sup>	Annals of Surgery, May, 1893, 511	1	...	1
Doyen <sup>1</sup>	Rev. de Chir., 1893, 391	1	...	1
Horsley <sup>3</sup>	British Medical Journal, 1891, ii. 1191	...	1	1
McBurney <sup>2</sup>	Annals of Surgery, 1893, i. 516, 519	2	...	2
Parkhill <sup>1</sup>	Medical News, Sept. 16, 1893, 319	1	...	1
Edw. Kerr <sup>1</sup>	Journ. Amer. Med. Assoc., Feb. 18, 1893, 181	1	...	1
Fernandez <sup>4</sup>	Siglo Med., Madrid, 1892, 804, 819; 1893, 4, 18, 36	...	1	1
Fowler <sup>2</sup>	Personal Communication	1	1	2
Tiffany <sup>2</sup>	Annals of Surgery, Jan., 1894, 47	4	...	4
Finney <sup>2</sup>	Johns Hopkins Bulletin, Oct., 1893	2	1	3
Novaro <sup>1</sup>	Journ. de Méd., de Chir. et de Pharm., Bruxelles, Sept. 20, 1891	1	...	1
Keen and Mitchell <sup>2</sup>	Trans. Philadelphia County Med. Soc., Feb. 14, 1894	1	...	1
		34	6	40

	Cases.	Recovered.	Died.	Mortality per cent.
<sup>1</sup> Rose's method	19	17	2	10.5
<sup>2</sup> Hartley's method	19	17	2	10.5
<sup>3</sup> Horsley's method	1	0	1	100.0
<sup>4</sup> Method unknown.	Reference furnished by Dr. Hinsdale, which could not be verified.			



## VI.—SURGERY OF THE MOUTH AND NECK.

*The treatment of cleft palate.*—**Ewings Mear** (*Annals of Surg.*, Feb., 1894, p. 248) read a paper on this subject at the Philadelphia Academy of Surgery, in which he states his opinion that operative measures are recommended instead of mechanical appliances, especially for the soft palate, although he suggests that it is advisable sometimes to close the soft palate only, and to use an obturator for the hard. For clefts in the hard palate he recommends Fergusson's method of osteoplasty, viz., freshening the edges of the cleft, drilling the bony processes and passage of the sutures, followed by division of these processes laterally by the chisel and prising them inwards to the middle line. The soft palate also sometimes needs division laterally, in order to draw the segments together without tension. **Davies-Colley** (*Med.-Chi. Soc., Lond.*, April 24, 1894, and *Brit. Med. Journ.*, April 28, 1894) reports one of six cases in which the operation devised by him some years back had been successful. It consists in raising a narrow flap from either side of the hard palate, leaving them attached to the palatal margin, turning them over into the cleft with the mucous side upwards, and fixing them across the aperture by a few stitches. They are covered over by the union of two flaps obtained by stripping up the muco-periosteum on either side of the former incisions, one of the flaps being totally detached anteriorly and drawn across to reach the other. The soft palate is also sutured at the same time. Personally, the writer of this paper has never met with a case of cleft palate in which Langenbeck's operation of uranoplasty could not be undertaken with just as great prospect of success. In his experience the severest forms of complete cleft have the soft tissues so scantily developed as to prohibit the possibility of a successful result after such an extensive dissection.

Whatever the method adopted for closure of the palate, it is most essential to follow it by a course of voice training or vocal gymnastics, so as to remove the objectionable nasal twang. **A. and H. Gutzmann** (*Med. Pädagog. Monatsschrift für die gesamte Sprachheilkunde*, 1893, Nos. 3 and 4) record their experiences in some seventy cases, thirty-three of which had been operated on successfully; in twenty-three operation had been combined with the use of an obturator, and in fourteen an obturator alone was employed. Massage of the restored palate was combined in suitable cases with vocal exercises, the object being to restore mobility to the velum. The most successful results were gained in those cases where complete union of the palate had followed an operation.

*Ankylosis of the jaws.*—Paul Swain (*Lancet*, July 28, 1894) gives an account of the various operative measures which have been undertaken for this troublesome condition, and of the results thereby obtained. Out of twenty cases published, he finds that excision of the condyle or neck of the jaw was performed eleven times, Esmarch's operation (removal of a wedge-shaped portion of bone from the angle of the jaw) in five instances, subcutaneous division of ligaments twice, whilst simple division of the ramus of the jaw and partial removal of the neck were each undertaken once. The only measure which gave really satisfactory results was Esmarch's, and there can be no doubt that it is the best and most scientifically-planned operation. The incision is made behind the angle of the jaw, and hence the scar is very little seen; there are no vessels or nerves of importance endangered, as in dealing with the condyle, and sufficient bone can be removed to prevent reunion of the fragments.

Butlin (*Brit. Med. Journ.*, April 24, 1894), in a clinical lecture delivered at St. Bartholomew's Hospital, records his experiences in forty-six cases of *removal of the tongue*, with but one fatal result. Whitehead's method, accompanied or not with removal of glands, etc., was that usually employed. Special attention was directed to the *after-treatment*, and upon this the lecturer thought his success mainly depended. The chief facts may be summarised as follows:—(1) The mouth is kept as far as possible aseptic by mouth-washes of Condy's fluid or weak carbolic lotion, and the insufflation of iodoform. (2) The discharge is prevented from running into the air-passages by keeping the head low on a single pillow, and directed towards that side from which the greatest amount of tongue tissue has been removed; the tendency to collect in the cheek is overcome by frequent syringing or washing out. (3) The feeding of the patient is made a great point of. If only half the organ has been removed, the patient is allowed to take fluid food next day. A piece of india-rubber tubing, three or four inches long, is fixed to the spout of a feeder, and the patient is made to lie on the opposite side to that which has been operated on, and thus but little trouble is experienced. When the whole tongue has been removed, the difficulty in swallowing is often much greater, and rectal alimentation is maintained for forty-eight hours. At the end of this time feeding by an œsophageal tube is commenced. A black bulbous catheter (No. 9 or 10), connected by tubing with a glass funnel, is employed; the catheter is readily passed to a distance of about eleven inches from the teeth, and the food then slowly injected. Great care should be taken, in removing the apparatus,

not to let any fluid drip into the larynx as the tube passes the entrance.

## VII.—SURGERY OF THE NECK.

*The surgical treatment of Graves's disease* by a partial thyroidectomy has been a good deal under discussion during the last year, and many cases have been operated on. The thyroidal origin of the disease is evidently not yet accepted as proven in England, as shown by the discussion in the *Med. Soc. Lond.* on October 16, 1893. **Putnam** (*Journ. of Nerv. and Mental Dis.* December, 1893), discusses the subject, and tabulates fifty-one cases, in most of which operation produced improvement or substantial cure. It is quite possible that there is more than one form of the disease, and that in some cases the general symptoms (tachycardia, etc.) are due to the excessive absorption of thyroid juice, whilst in others the enlargement of the gland and general phenomena are both due to some deep unrecognised origin. **Prof. Greenfield** in his Bradshaw lecture (*Lancet*, December 16 and 23, 1893) reviews the whole subject, and his opinion is rather in favour of the thyroidal origin of this affection. In discussing its operative treatment, he comments on the imperfect records of the general symptoms present in many of the patients, but admits that amongst those cases the nature of which cannot be doubted the proportion of success is sufficient to encourage operation, especially as the mortality, where efficient asepsis is maintained, is very small. **Marie** (*Soc. Méd. des Hôpitaux*, February 23, 1894) on the other hand, emphasises the influence of the nervous system (? the sympathetic) as predominant, noting the fact that an overdose of thyroid extract, though producing many of the symptoms of Graves's disease, does not cause exophthalmos or von Graefe's symptom. As a rule, after operation the prominence of the eyeball diminishes at once—an observation somewhat opposed to the idea that such is due to an excessive formation of orbital fat; occasionally, however, it is not influenced by the operation.

*Persistent thyreo-glossal duct.*—Several cases of this condition have been recorded, and amongst them the following:—**A. E. Durham** (*Med.-Chi. Soc., London*, April 10, 1894) reports three cases of persistent thyreo-glossal duct, one with a lumen partly lined with columnar ciliated, partly with squamous, epithelium, and also showing a small tract of thyroid gland follicles; a second with columnar epithelium below, squamous above; and a third extending up from a goitrous isthmus. They were all successfully treated by excision. It was subsequently pointed out by **Bland Sutton** that in the majority of cases of central fistula of the neck, cysts arising from this duct formed first, and it is only after these



have been opened by the surgeon that a fistula results. **Morton** (*Brit. Med. Journ.*, May 12, 1894) records such a case in a man aged nineteen, in whom the swelling had been noticed since three years of age. It had been opened, discharging glairy fluid, and then healed. It was removed satisfactorily. Emphasis is laid on the difference between dermoids of the lingual end of the duct, which contain sebaceous material, and of the thyroid end, which are filled with a jelly-like glairy fluid. **Lucy** (*Brit. Med. Journ.*, June 23, 1894). Boy, aged twelve. Seven years previously a lump was noticed in front of neck; lanced, blood and matter evacuated; sinus since then discharging material like uncooked white of egg. Opening just above pomum Adami. Canal  $1\frac{3}{4}$  inch long dissected and scraped out, and, after three operations, cured. **Parkin** (*Brit. Med. Journ.*, June 23, 1894). Child, aged two and 9-12th years. Lump in middle line over thyroid cartilage, about size of cherry; first noticed when six months old. Filled with colourless glairy fluid. Connected below with well-marked central lobe of thyroid; above, attached deeply behind hyoid. Perfect recovery after operation.

**Carl Beck** (*Med. Rec.*, March 12, 1894) reports six cases of *congenital fistula of the neck*. Three cases (all lateral) cured by repeated applications of galvano-cautery. Two (one lateral, and one median) needed slitting up of fistula, and removal of lining membrane. The sixth case opened at the anterior border of the sterno-mastoid, about two inches from the sternum. After repeated applications of the cautery, it was slit up, and the lining membrane excised as far as the hyoid bone, but the old condition soon recurred. At a second operation a cavity was found behind the hyoid bone as large as a nut, which could only be efficiently dealt with by subperiosteally removing the greater part of the right side and body of the hyoid bone. A perfect cure resulted.

*Wounds of the thoracic duct.*—**Keen** read a communication to the *Philadelphia Academy of Surgery* (April 29, 1894), in which he reported and commented on four cases in which the thoracic duct had been injured during operation. (1) **Cheever's** case (*Boston Med. and Surg. Journ.*, 1875, p. 422) occurred during the removal of a tumour. The subclavian and another vein were also injured, and the patient died in thirty-six hours, of collapse. No attempt was made to secure the vessel, although the wound was packed with sponges and ferric alum. (2) Reported by **Boegehold** (*Archiv. f. klin. Chir.*, 1893, p. 443), in which Wilms, removing a malignant tumour, as large as a fist, from the neck of a man, aged forty-five, wounded the duct with a sharp spoon. A milky chylous fluid was at once seen welling up; as it was impossible to

secure the vessel owing to its depth, the wound was packed with wool, and a bandage applied. The patient did well, although he died of recurrence of the disease in six months. (3) **Phelps's** case (not recorded elsewhere) occurred in June, 1893, during the removal of a malignant tumour of the left side of the neck. The duct was wounded, and a very free discharge of chyle resulted. This continued till the fourth day, when, as the patient was becoming exhausted, a successful attempt to stop it was made by pinching up its point of evacuation by forceps, which remained *in situ* three days. The patient's condition at once improved, and he made an excellent recovery. (4) **Keen's** case occurred during the removal of a mass of very adherent tubercular glands, both in the axilla and in the lower part of the neck. Clear fluid at once escaped, but as the patient had taken no food for eighteen hours previously, this may well have come from the thoracic duct. It coagulated immediately. The opening in the duct was closed by a fine silk ligature, and the patient did well.

In commenting on these cases, Keen pointed out that, as manifested by sundry specimens shown, the thoracic duct often opens into the venous system by several branches; and thus it is quite explicable that recovery may ensue after one of them has been wounded and tied. If this is not accomplished, the patient rapidly dies of asthenia. Compression and closure of the duct are not necessarily fatal, as collateral circulation can be established. This fact has been experimentally demonstrated in dogs, in whom the thoracic duct always opens singly. A subcutaneous rupture of the duct is, however, very likely to prove fatal from compression of the heart or lungs by the constantly-increasing amount of chyle which leaks into the pleural cavity. In such cases aspiration of the chest may relieve symptoms, and even cure the case, as in **Kirchner's** patient (*Archiv. f. klin. Chir.*, 1885, p. 156).

### VIII.—SURGERY OF THE BREAST.

**W. W. Cheyne** contributed a valuable paper to the Harveian Society (London) on the subject of the *treatment of cancer of the breast* (*Brit. Med. Journ.*, Feb. 10, 1894). He emphasised the fact that cancer is distinctly a localised disease at first, spreading along the lymphatics. These consist of a plexus in the nipple, and extend thence under the areola and skin, or after permeating the breast substance along the fascia over the pectoralis major muscle to the axillary glands, or even sometimes communicate with those in the opposite breast, or extend deeply to the mediastinal glands. Moreover, it is pointed out that, as demonstrated by **Stiles**, the

breast is a much more extensive organ than was formerly supposed, and that removal of the projecting mass only of the gland usually leaves many outlying nodules behind. Hence most extensive dissections must be made in order to remove all possible foci of disease. Cheyne thinks it advisable, in all cases, to remove the skin co-extensive with the prominent part of the breast, and never to dissect up skin from over the tumour. Moreover, the whole of the pectoral fascia, and a thin layer of subjacent muscle, should also be included; and the fat and fascia leading from the breast to the axilla, as well as the glands and fatty contents of that cavity, should be thoroughly and systematically dissected away, and not merely the prominent glands pulled out. Such wounds can usually be closed by undercutting the neighbouring skin, and by the use of button and wire sutures.

As to results, Cheyne was able to record twenty patients operated on over a year previously, and of these, fourteen remained well, and six had recurred; whilst of those dealt with over two years ago, 66 per cent. remained well; and of the five treated over three years ago, three, or 60 per cent., were without recurrence. The mortality of the operation might be considered to be about 2 or 3 per cent.

## IX.—SURGERY OF THE BLOOD-VESSELS.

**Ransohoff** (*Annals of Surg.*, Jan., 1894) recommends extirpation of aneurisms as the ideal treatment, and records two cases of traumatic aneurism of smaller vessels thus treated. He specially advises its use—(1) in all aneurisms of forearm and leg; (2) in all aneurisms which have ruptured or are threatening to rupture; (3) when other methods have failed, prior to amputation; (4) in arterio-venous aneurisms. Proximal ligation is to be undertaken only in spontaneous aneurisms in old and feeble individuals, or where position precludes extirpation. Thus a case is reported in the *Lancet* (August 25, 1894) in which a popliteal aneurism, after being ineffectually treated by compression and ligature of the femoral at the apex of Scarpa's triangle by **Heath**, was subsequently extirpated by **Horsley** with most satisfactory results. An incision was made over the aneurism after exsanguinating the limb, through which the popliteal artery was secured above and below, and the whole tumour removed. Ransohoff quotes the results of forty-six cases thus treated, collected from recent literature, with but one death, and no secondary hæmorrhage or gangrene; of these, fifteen were spontaneous, and thirty-one traumatic in origin, twelve being arterio-venous in character. The disadvantages of extirpation are the difficulty of the operation



and the danger to the surrounding structures, owing to the adhesions always present. A careful dissection, however, after exsanguinating the limb, suffices to prevent serious mischief, and even in the cases where the attending vein has been injured, necessitating its ligature or extirpation (eleven cases), no gangrene followed. The author's experience quite bears out this plan of treatment, particularly with respect to one instance where an aneurism of the superficial femoral had recovered after ligature of the external iliac, and was successfully extirpated with the femoral vein, which was completely blocked, and flattened out on the tumour.

*Subclavian aneurism.*—**C. A. Morton** has recorded a case (*Brit. Med. Journ.*, May 19, 1894) in which he adopted the suggestion originally made by Sir W. Fergusson, of treating this condition by amputation through the shoulder-joint. Treatment by means of proximal pressure was first tried for forty-eight hours, followed by the administration of calcium chloride; subsequently the interior of the sac was needled according to Macewen's plan, and as no good resulted, direct pressure was made over that portion of the tumour which projected below the clavicle. As no improvement followed, and as the pain was so severe that even half-grain injections of morphine did no good, recourse was had finally to amputation at the shoulder-joint and distal ligature. The wound healed well, but the aneurism continued to increase, and finally diffusion into the scapular region occurred, the patient dying of exhaustion about five weeks after the operation. This is the fourth recorded case of such treatment; two of the cases did well, although one (Heath's) was not cured until needles had been inserted in the sac.

Morton adds some pertinent remarks as to the value of Macewen's method. "In an aneurism of any size, is not the wall always rough enough to start the formation of laminated clot without scratching? Is the exudation of leucocytes from the injury to the wall and their conversion into fibrin likely to produce more laminated clot than the deposition of leucocytes on the rough wall of the aneurism? In Macewen's own cases the good result seems to have been far too gradual to have been due to clotting from the presence of the needles acting as foreign bodies; but it is well to remember that there is always that element present in the treatment as well as the injury to the aneurismal wall."

**Lipps** (*Archiv. f. klin. Chirurg.*, Bd. xlv. Hft. 1) once more emphasises the importance of only tying the external carotid instead of the common in cases where ligature of the former trunk will suffice, since the mortality from cerebral derangements amounts

to at least 13 per cent. (Friedländer) after tying the latter, whilst in 130 cases of ligature of the external carotid not a single fatality followed.

*Treatment of injuries of the vertebral artery.*—**Matas** (*Annals of Surg.*, Nov., 1893) discusses *in extenso* the surgery of the vertebral artery, dealing especially with wounds and traumatic aneurisms of that trunk. After pointing out the difficulty of diagnosing the source of the hæmorrhage, as indicated by the fact that in sixteen out of thirty-six cases of injury to that vessel the carotid trunk was tied, he emphasises the serious nature of such a mistake by quoting Holmes's observation, viz., that ligature of the carotid aggravates the condition by throwing increased work upon the vertebral trunk, and also imperils the nutrition of the brain by seriously diminishing a supply already less than normal. Pressure above the sixth cervical transverse process and Rouge's plan of compressing the artery laterally by pinching up the vessel with the sterno-mastoid are commended as useful helps in diagnosis. From the fact that if in the cadaver the vertebral trunk is divided, and the aorta injected, it returns with equal force and rapidity from both ends of the vessel, it is evident that proximal ligature alone is not to be depended upon.

Forty-one cases of traumatism are commented on: in 19, traumatic aneurisms followed, but in 22 there was no such result. Death followed in 33 instances, giving a mortality of 80·69 per cent.; it was due mainly to hæmorrhage, but this was not always of the primary type. Other factors, such as shock, sepsis, exhaustion, were also present. The conclusions drawn from the consideration of the recorded cases are as follows:—

In traumatic aneurisms, whilst in a few instances good results have followed rest, direct pressure and cold, the usual tendency is to diffusion and rupture of the sac, a proceeding much hastened by erroneous ligature of the carotid. This error could always be avoided by observing the general rule of surgery, never to ligate an artery in continuity for an aneurism unless during the operation temporary compression of the vessel between a finger and the ligature passed beneath it causes the pulsation in the sac to cease. In progressive cases, Matas strongly condemns the use of coagulating injections, but thinks that electrolysis or Macewen's method of treatment might be useful. He, however, favours the old-fashioned operation of Antyllus of opening the sac, and if hæmorrhage is so severe as to prevent the surgeon from removing transverse processes and securing the vessel above and below, the arterio-vertebral canal should be plugged with aseptic sponge or an iodoform gauze tampon. The surgeon may be

much assisted in this operation by exposing the vessel before it enters the canal in the transverse processes, and compressing it temporarily by the finger.

In primary hæmorrhage from the vertebral artery, the loss of blood and shock are often so severe as to defy the resources of surgery, especially where the jugular or one of the branches of the carotid is also involved. In cases where it is practicable, the circulation is to be temporarily arrested by digital pressure, and the wound enlarged so as to allow the bleeding point to be seen, when it is secured either by a double ligature, or by the maintained grasp of hæmostatic forceps, or prevented by firm plugging of the vertebral canal, which has been laid open by the gouge or cutting pliers if need be.

### **Cocaine as a hæmostatic in hæmophilia.**

Manteuffel (*Deut. med. Wochenschrift*, No. 28, 1893) reports a case in which recurrent bleeding in a hæmophilic Jewish boy after extraction of a tooth was stopped by injecting cocaine into the gum preparatory to cauterising, when the bleeding immediately ceased. The injections needed to be repeated for a time every five or six hours. Antipyrin, perchloride of iron, and careful pressure had previously failed. The same author has had another similar case.

## **X.—SURGERY OF THE LUNG.**

### **Resection of lung.**

Lopez (*Siglo Medico*, April, 1894) records a case in which an incision through the seventh intercostal space was followed by a pneumocele, and as symptoms of strangulation and gangrene of the protruded mass manifested themselves, its removal was determined on. The lung was exposed, transfixed, ligatured, and removed flush with the chest-wall, and the wound closed. The case finally did well, although some sero-pus had to be removed from the pleural cavity by a canula inserted through the wound. The lung was stated to have subsequently become freely movable.

In discussing the *surgical treatment of pulmonary cavities*, Dandridge (*Annals of Surgery*, Feb., 1894) suggests that tubercular cavities at the base of the lungs should always be operated on; that cavities at the apex should not be touched unless the rest of the lung is clear and a continuous foetid expectoration is present: and that abscess, gangrene, and hydatid cysts should always be attacked, if localised. He also advises that the pleural sac should be closed off before opening such cavities, that such openings should be made with the actual cautery, and



that when opened they are best dressed by packing with iodoform gauze.

## XI.—SURGERY OF THE ABDOMEN.

One of the most recent advances in this region consists in the introduction of what is known as *Murphy's Anastomosis Button* for intestinal approximation without sutures, which was mentioned in the last issue of the "Year-Book." By the courtesy of Messrs. Down Brothers, we are now able to give some illustrations of the button and its method of application.

The button consists of two halves, a male and a female

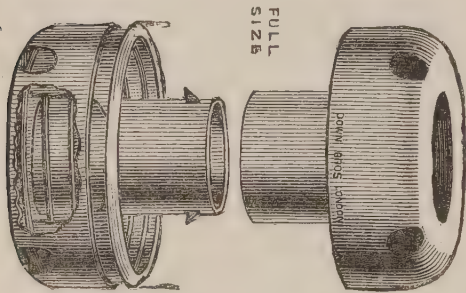


Fig. 1.

Fig. 2.

(Figs. 1 and 2), each formed by a hollow stem and a cup-like expansion at the end, fitting the one into the other, approximation being obtained by simply pressing the segments together, and being maintained by the hold of two tooth-ended springs, projecting through fenestræ in the hollow stem of the male portion, upon a screw thread cut on

the inner aspect of the stem of the female half. The two halves are separated by unscrewing the one from the other. The male half has an inner cup or flange connected with the outer bowl by a spring, so that when approximation is complete, constant pressure of this springed flange may induce atrophy of the tissues grasped by the button, and thus set it free in the lumen of the intestine.

Murphy's button has been used for various operations, and the details of the method of application somewhat vary in each :

1. For *Cholecystenterostomy* the button has been employed with most gratifying success (p. 260). After exposing the area of disease by a vertical or other incision, the gall-bladder and duodenum are drawn into the wound, and suitable portions for anastomosis selected, the duodenum being clamped on either side. An incision two-thirds the length of the diameter of the button to be used is made in the bowel, involving only the serous and subserous tissue. A running thread of silk is now passed through the whole thickness of the wall of the intestine in several places (as indicated by Fig. 3), so as to surround the incision, and having a loop left at one end of it and the two free ends at the other. This thread, when tightened around the stem

of the button after its insertion, draws the incised edge of the bowel well within the cup. A similar thread is inserted around the

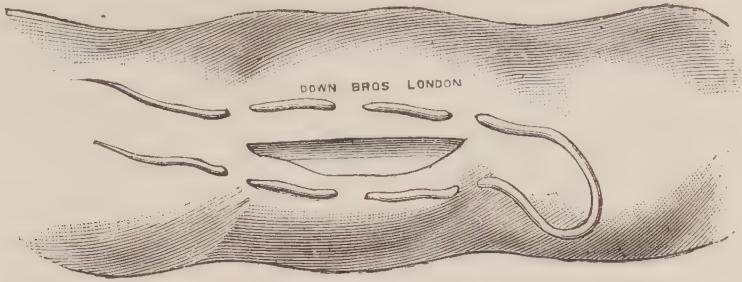


Fig. 3.

incision in the gall-bladder. The duodenal incision is now completed by division of the muscular coat and mucous membrane, and the male half of the button, held by forceps, as in Fig. 4, is slipped

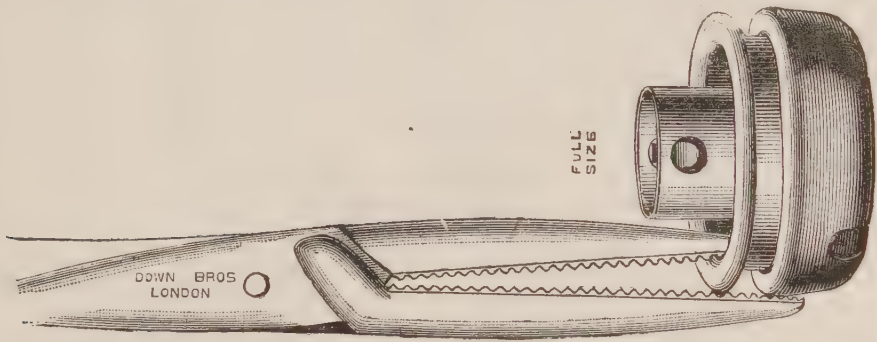


Fig. 4. Showing method of holding male half of button for insertion.

in and the running thread tied firmly around the hollow stem.

The incision in the gall-bladder is also deepened so as to open

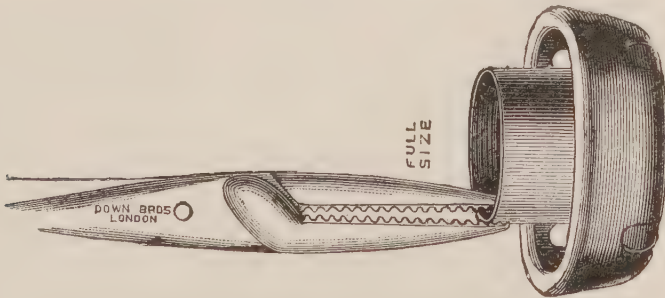


Fig. 5. Showing method of holding female half of button for insertion.

the cavity; the gall-stones and fluid contents are removed, and the female half of the button, grasped as in Fig. 5, inserted and the running thread tightened. The forceps may then be

removed, and the two halves of the button, held by the fingers, as in Fig. 6, are pressed together, sufficient pressure being employed to bring the serous surfaces firmly in contact and to compress the tissues. The clamps are then removed from the duodenum and the parts replaced in the abdomen. Adhesions quickly form at the outer limits of the apposed serous surfaces, and the tissues grasped by the button atrophy from the pressure of the inner spring-cup, so that in about ten days from the operation

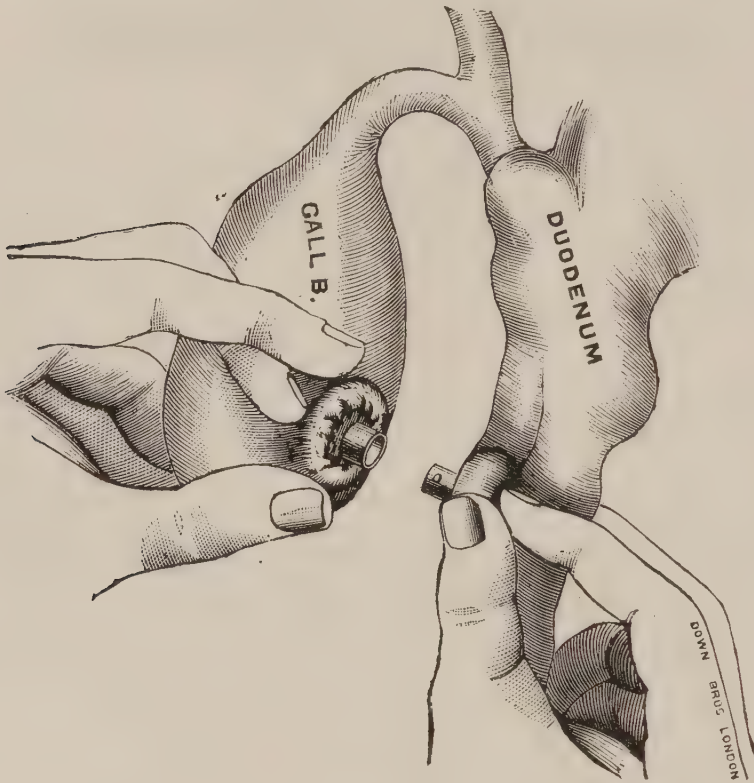


Fig. 6.

the button is set free, and passes into the duodenum into which the heavier male half was inserted. It passes down the intestine, and is evacuated with the faeces in two or three weeks.

2. For *Gastro-enterostomy*, the button may be used in exactly the same way, the female half being placed in the stomach. The largest size of button should be employed for this purpose.

3. For *lateral intestinal anastomosis*, the same type of button may be employed, or a large one illustrated in Fig. 7, which latter requires a special key (Fig. 8) to disengage the springs from the female thread. There are two methods in which the ordinary button may be employed:—(a) where two lateral surfaces are to be brought into contact, the button is used as described above,



the heavier male half being always inserted in the lower segment. Previous to inserting the button the divided ends of the gut are closed by a Lembert's suture. (b) The divided upper end may be implanted into a lateral incision in the lower half as in ileocolostomy. The female half of the button is secured in the upper end as described and figured below for the end-to-end anastomosis. The male half is secured in the lateral incision in the distal half with a running thread as in cholecystenterostomy.

4. *End - to - end anastomosis.*

The intestine, having been clamped, is excised in the usual way, and the vessels in the mesentery ligatured.

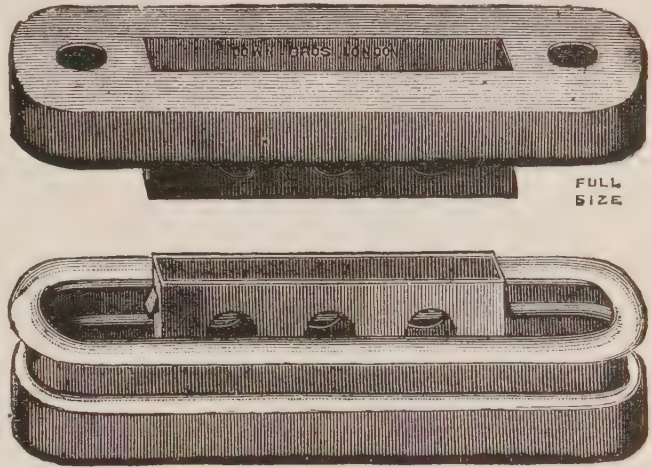


Fig. 7.

A running thread is now inserted in each end as seen in Fig. 9. It commences at the antimesenteric border (Fig. 9b), traverses the whole thickness of the gut two or three times until it reaches the mesentery (Fig. 9a), where a return overstitch is inserted so as to cause the two layers of peritoneum to overlap, and to be drawn within the grasp of the button. The same stitch is then similarly inserted along the opposite side of the tube, and brought out at the antimesenteric border. The button is now inserted, the stitch drawn tight, and the intestinal wall puckered up around the stem of the button. The other end of the intestine is treated in the same way, the male half of the button being, if possible, placed in the

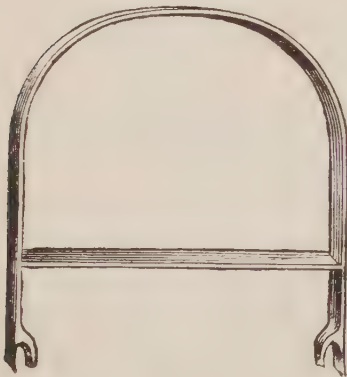


Fig. 8.

lower division. The two ends are then approximated by closing the button, as seen in Fig. 10. Murphy recommends that a button at last  $1\frac{1}{2}$  inch in diameter should be used for this purpose.

5. For **Cholecystotomy** (or as it should perhaps be better termed, "cholecystostomy"), the button may also be profitably

employed. The male half is threaded with two pieces of silk as indicated in Fig. 11, each piece passing between two contiguous drainage holes in the back of the button, and the ends passed down the hollow stem; traction can thus be made when this half of the apparatus is placed in the gall-bladder. This is accomplished in the same way as already described for cholecystenterostomy. The stem of the female half of the button is then passed through a small hole made in the parietal peritoneum about half

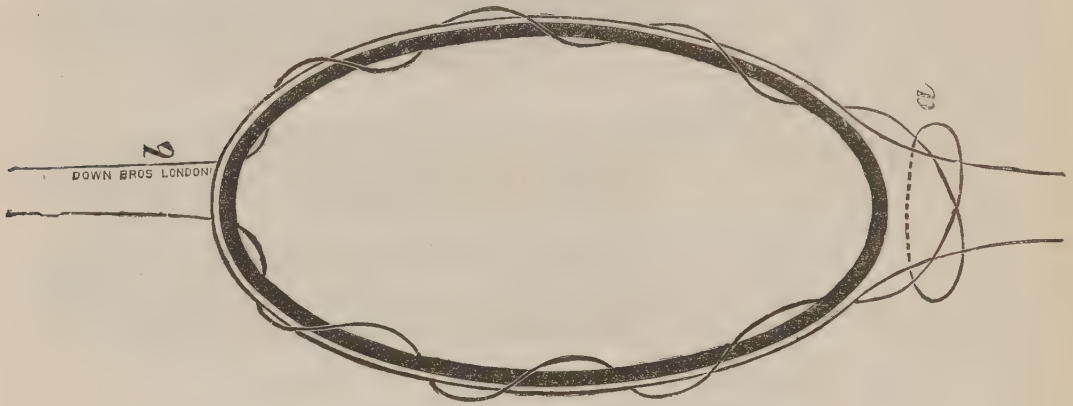


Fig. 9.

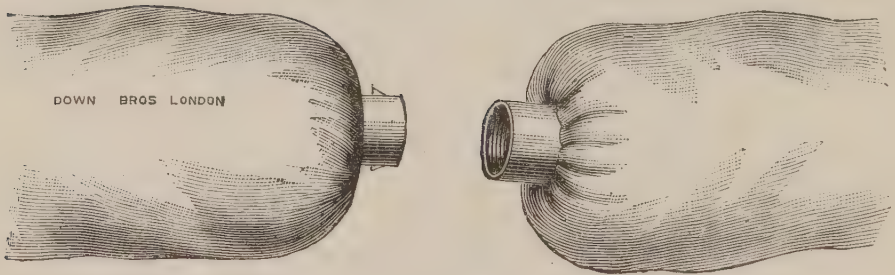


Fig. 10.

an inch to one or other side of the incision; the ends of the threads are passed through it, and approximation is made by pulling the male half within the grasp of the female by their means. When this is safely accomplished, the threads are readily withdrawn. The incision in the peritoneum is then closed, as also the greater part of the wound, and the gall-bladder discharges through the button until the desired fistula is established by the apparatus coming away in the dressing. Where the gall-bladder cannot be drawn up to reach the surface, the "drainage-tube button," shown also in Fig. 11, can be made use of.

Already several cases of the successful use of the button in England have been recorded. The results gained in cholecys-

tenterostomy are given elsewhere (p. 260). Lane (*Medical Press*, Aug. 29, 1894) has used it for excision of the pylorus, also in a case of resection of the sigmoid flexure for a sarcoma of its mesentery; and Paul Swain (*Lancet*, Oct. 20, 1894) in a case of enterectomy. Doubtless many others will soon appear, as the plan is both simple and effective. A further notice of it appeared in the *Lancet* of September 15.

### Adhesions after laparotomy.

Wiggin (*N. Y. Med. Journal*, Jan. 29, 1894) reported a case of successful excision of a portion of the ileum which had been badly contused and ruptured, treated by immediate circular enterorrhaphy

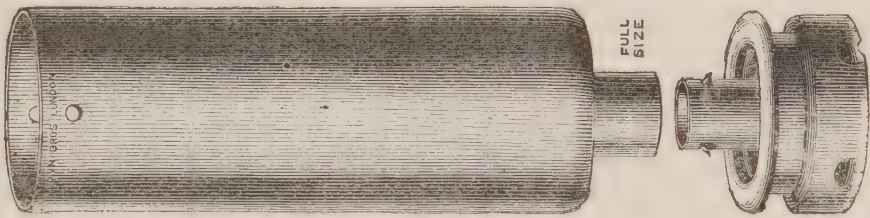
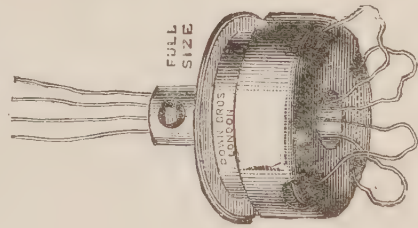


Fig. 11.

by Maunsell's method. The peritoneal cavity was subsequently disinfected by a 15-volume solution of hydrogen dioxide, and filled by a hot sterilised solution of salt. The object of the latter precaution was "to diminish



shock, to prevent the formation of adhesions, to aid in the readjustment of the viscera to their proper positions, to lessen the danger of peritonitis, and to aid the action of the bowels by osmosis." The suggestion seems a good one, and if by its means the prevention of adhesions to the under surface of the laparotomy wound is secured, a great step will have been accomplished. Only too often is a successful operation invalidated by some sequelæ due to this unfortunate occurrence. Thus H. P. Dean reported to the Medical Society (London, May 7, 1894) a case in which he had successfully excised a *perforating ulcer of the duodenum*, although general peritonitis existed at the time of operation. The patient did well, but a fibrous adhesion formed between the omentum and the wound in the parietes, which two months later caused acute strangulation, and in spite of operation a fatal result followed. Dean emphasises the need of exploring the abdomen, whenever, after a laparotomy, an attack of severe pain ensues accompanied with signs of obstruction



which in other circumstances would be dealt with by other means.

**Laroyenne** (*Archives de Tocol. et de Gynéc.*, May, 1894) discusses the tendency to hernia caused by the presence of a drainage-tube passed through the abdominal wall after a serious ovariectomy or incision of abdominal abscess, and suggests the passage through the walls of sutures (either of silver wire or silkworm gut) which are left untied until the tube is removed. If, however, the supuration threatens to become chronic, the lowest are tied four or five days after the operation, and the others are removed.

**The treatment of acute peritonitis** was discussed *in extenso* by **F. Treves** in the Lettsomian lectures (Med. Soc. Lond., 1894), but although giving an exhaustive *résumé*, he was unable to add anything new to the medical man's armamentarium. He discussed it under various headings, after emphasising again and again the fact that the patient dies not as the result of the inflammation, but of the toxæmia arising from the absorption of the products of inflammation. (1) *Rest* should be obtained by flexing the patient's knees over a pillow, whilst the chest and upper limbs are protected by a woollen jacket, with no attempts to restrain them unduly. (2) As to *feeding*, the main reliance should be upon rectal alimentation; but a certain amount of latitude should be granted to the patient, so that his excessive thirst may be assuaged by a little iced milk and soda-water, and, if desired, by a little warm beef-tea. (3) *Opium* should be used as sparingly as possible, and only to combat excessive pain, or shock, or in hopeless cases it may be employed to promote euthanasia; otherwise it masks symptoms, hinders the natural process of cure, and hampers treatment; (4) *Aperients*, though sometimes useful, must be used with the greatest care, and with the nicest and most discriminating precision. In fully established general peritonitis, whether due to external injury or to lesions of the bowels, no good can possibly follow their administration; but in many cases of appendicitis, and in the so-called "pseudo-ileus" following operations, the prompt evacuation of the bowels by a saline purgative, as suggested by Lawson Tait, is often attended with the very best results. (5) *Blood-letting*, especially by the application of leeches to the abdomen, may be most beneficial in robust cases of localised inflammation. (6) *Operative measures* in the more localised forms of peritonitis rank with the procedure of evacuating a large abscess, and give most excellent results; but when the inflammation is diffuse, there is no record to boast of, and little progress to chronicle. Statistics dating up to 1890 are given, and certainly the results are anything but good. The character

of the operation must necessarily vary with the cause and degree of the trouble. If the exudation is serous, mere evacuation of the fluid and mopping out the most dependent parts of the cavity with gauze sponges will usually suffice, drainage even being dispensed with. But where pus or sero-pus constitutes the exudate, irrigation should be employed, and Treves recommends the use of a .6 per cent. warm salt solution. A drainage-tube should be subsequently inserted. Where the intestines are matted together by abundant greyish lymph over a perforation, he suggests that it is advisable rather to leave the *fons et origo mali*, although carefully separating surrounding coils of gut so as to give exit to retained discharges: in such cases nature will provide a better and quicker barrier against extravasation than any suture devised or carried out by the surgeon. Kaiser records five successes out of six where the site of the lesion was never discovered. Irrigation is not advisable in such cases, whilst iodoform should be freely powdered on the serous membrane, except in children, and drainage provided for by strips of gauze. Acting on the lines indicated above, **Barling** has recorded (*Brit. Med. Journ.*, Jan. 20, 1894) four instances of diffuse suppurative peritonitis, with three successes; in none of these was the focus of the mischief sought for.

**The treatment of tuberculous peritonitis** by laparotomy still holds its own, and **Treves** (*loc. cit.*) gives elaborate statistics, quoted from **Aldibert**, showing the value of the procedure. It is impossible to quote them here, but the general summary may be given, viz.:—

Cases treated by operation	...	...	308
Deaths	...	...	74
Mortality due directly to operation	...	...	2·5 per cent.
Cures...	...	...	215, or 69·8 per cent.

and of these, 33·4 per cent. may be regarded as complete recoveries. In the “ascitic” variety, incision will be of little use except in the more chronic or localised forms, and in them simple incision and evacuation of the fluid are of most use without either drainage or flushing. In the “fibrous” form great care must be taken of adhesions, and flushing should be employed, as well as drainage where many adhesions have been disturbed. In the “ulcerous” stage, where caseating and broken-down tubercles are scattered widely over the peritoneum, or where many suppurating foci appear, laparotomy with drainage may be employed, but the less adhesions are disturbed the better. Four-fifths of such cases are said to recover after operation.

As to the rationale of this treatment much has been written,

and many diverse opinions expressed. The simple removal of the exudation and its contained toxins, the alteration of the intra-abdominal tension, the effect of light and atmospheric air, have all been lauded as the curative principle. **Nolen** (*Berl. klin. Wochenschrift*, 1893, No. 34) records two recoveries out of three cases treated by pumping sterilised air into the peritoneal cavity after removing the ascitic fluid, and claims that its presence and the altered conditions of pressure set up thereby are responsible for the cure.

### **Gastrostomy.**

**Keen** (*Annals of Surgery*, Dec., 1893) discusses the various methods of performing this operation, and describes an illustrative case, and in the preceding issue of the same periodical **Meyer** records two or three cases dealt with in different ways. Two main methods have been employed to establish a permanent opening into the stomach:—(a) That in which a direct communication is made into the viscus, *e.g.*, by the method usually described in English text-books. It was first proposed by **Egebert**, and has been subsequently modified in some of its details. The incision is either parallel to the ribs or placed vertically, and the stomach is then attached to the skin. **Howse** and **Von Hacker** have both suggested using the fibres of the rectus abdominis muscle as a sphincter by dividing them vertically, whilst various methods of suturing the stomach to the abdominal wall have been devised, one of the most satisfactory being that of **Greig Smith**, in which good apposition between the visceral and parietal layers of the peritoneum is obtained. None of these plans is free from the great objection that leakage of the gastric contents is constantly met with subsequently, giving rise to irritation and eczema of the skin, whilst prolapse of the mucous membrane is not uncommon. (b) Several methods for obtaining a valvular opening into the stomach have recently been suggested, and the results gained seem to have been much more satisfactory. **Witzel's** operation (*Centralbl. f. Chir.*, 1891) consists in opening the abdomen, drawing out the stomach, and inserting into it a medium-sized rubber tube. The gastric end is then buried for about two inches between two rows of **Lembert's** sutures, so as to prevent any regurgitation backwards or sideways, and the end of the tube is then brought out of the wound and fixed there, whilst the stomach itself is securely apposed to the abdominal parietes. An oblique opening into the viscus is thus obtained, something like the entrance of the ureter into the bladder. **Frank's** method (*Wien. klin. Woch.*, 1893, No. 13) is illustrated



by a case recorded by Meyer, and this surgeon considers it the best yet devised, and likely to become the standard operation. The usual oblique incision parallel to the rib-margin is made, and the peritoneum opened along this line close to the border of the ribs. A conical portion of the anterior wall of the stomach, one to one inch and a half in extent, is drawn out by a few silk slings passed through it, and the base of the cone fixed to the parietal peritoneum by sutures so as to close the abdominal cavity. A second incision three-quarters of an inch in length is now made through the skin only, above the border of the ribs the bridge of skin interposed between the two incisions is undermined, and the stomach cone pulled under it and out of the upper wound. The viscus is at once incised, and the mucous membrane stitched to the skin. Frank has thrice operated in this way, with excellent results; Meyer twice, with one death, the patient being exceedingly low beforehand. The great advantage is the valvular opening, which allows of no escape of the contents, even upon coughing. No tube need be worn. Where a tumour of the cardiac orifice exists, some difficulty may be experienced in drawing the stomach forwards sufficiently.

#### **Pyloroplasty for (?) syphilitic stenosis.**

**B. F. Curtis** (*Annals of Surgery*, Aug., 1894, p. 176) relates a case in which this was successfully accomplished. The patient, a coloured man, æt. thirty-seven, had had symptoms of pyloric obstruction for eleven months previously. On opening the stomach the pylorus was found surrounded by an ulcer with a dense sloughy infiltrated base, although no such induration was present as would suggest a neoplasm. The pylorus was divided longitudinally and united transversely, and the increased space was such that two fingers could subsequently be inserted with ease into the previously stenosed segment of the gut. **H. W. Allingham** (*Lancet*, June 23, 1894) records two successful cases in which a similar operation was performed for stricture of the intestine lower down. The stricture was divided by a longitudinal incision, the wound thus formed was opened up, and closed again transversely.

#### **Perforating gastric ulcer.**

**Morse**, of Norwich (*Med. Chi. Soc. Lond.*, March 13, 1894), reported a successful case of abdominal section and suture applied for this condition. In the discussion which followed, many surgeons related similar cases, and all emphasised the imperative necessity of operating as soon as the symptoms of pain, collapse, and vomiting showed themselves. Every hour lost diminishes the chance of saving the patient. The incision should be made to

the left of the middle line, and there is no need to excise the ulcer, but merely to pucker it over by a row of Lembert's sutures. The stomach may with advantage be washed out, and the peritoneal cavity should also be freely flushed out with warm boiled water or some very dilute antiseptic.

**Haslam** (*Brit. Med. Journ.*, Nov. 11, 1893) has discussed the subject pretty fully, *apropos* of an unsuccessful case in which he had operated. He states that two chief results may follow this condition :—

(1) Where no adhesions have formed, the gastric contents pass directly into the general peritoneal cavity, and give rise to an acute generalised peritonitis, which is rapidly fatal. In such cases the perforation is usually in the anterior wall, and the symptoms rapidly indicate the character of the lesion.

(2) In cases where the perforation is a small one and the leakage gradual, or where adhesions have previously formed, a localised inflammation may occur, with symptoms indicative of such a condition, *i.e.* the formation gradually of a painful swelling with some fever. The abscess may form anteriorly, and may even in rare cases burst into other viscera or serous cavities, *e.g.* the colon, pleura, or pericardium; or, if the perforation is placed posteriorly, as is most frequently the case, an abscess may form in the lesser cavity of the peritoneum, and then is almost certain to be fatal, if untreated; or there may be an escape of gas and a formation of pus into the subphrenic connective tissue, constituting the interesting condition known as "subphrenic pyo-pneumo-thorax," two cases of which were recorded and commented on by **Lee Dickinson** (*Brit. Med. Journ.*, Feb. 3, 1894). From *post-mortem* statistics at St. George's Hospital, he proves that this affection usually follows gastric perforation, but also occasionally the yielding of duodenal ulcers. In the former case a swelling containing air and pus forms beneath the diaphragm, usually to the left of the middle line, and limited by the falciform ligament; in the latter, to the right side. One case is recorded with typical symptoms operated on successfully by Rouse, and another unsuccessful case dealt with by Pick.

### **Perforating typhoid ulcer.**

Case reported by **Cayley** and **B. Sutton** (*Clin. Soc. Lond.*, Mar. 9, 1894), in which the latter operated  $5\frac{1}{2}$  hours after perforation. Pelvis full of fæces; perforation found, excised, and sutured. Peritoneum washed out, and wound closed. Patient lived till the sixth day, and *post-mortem* no signs of peritonitis were found. Sutton thought it would have been better to have made an artificial anus, and in this opinion was supported by **Battle**, who

stated that of twenty cases of excision of typhoid ulcers on record all were fatal.

### **Enterectomy and enterorrhaphy.**

A large number of cases of operations performed upon the intestinal tube, both for repairing lesions resulting from traumatism, and for the removal of disease, have been recorded. In fact, the operation is now so commonly undertaken, and so generally successful, that it is unnecessary to specially note the cases. The most interesting feature about the records is the tendency of the majority of surgeons to return to the simplest methods possible; and hence the Czerny-Lembert method is perhaps that most frequently adopted for end-to-end union. The great objection to this plan is the length of time occupied in carrying it out, a matter of great moment in an operation so liable to give rise to serious depression of the vital functions. **Maunsell's** method of intestinal suture obviates this difficulty, and it is satisfactory to note that its value is becoming more recognised, and that several successful cases in which it has been adopted have been reported. It may be objected that the sutures employed pass through all the coats of the gut, and hence may induce capillary leakage; the dangers arising therefrom can, however, be obviated by inserting an accessory row of interrupted Lembert's sutures around the united ends, and thus covering over the exposed portions of the sutures.

*Entero-anastomosis* is being much employed for the purpose of short-circuiting irremovable cancerous masses. Thus gastro-enterostomy is used for pyloric cancer, ileo-colostomy for caecal obstruction, colo-rectostomy for disease of the lower end of the colon (*e.g.* **Moskoe**, *Annals of Surg.*, Feb., 1894). For the purpose, Senn's plates or Murphy's button may be used, but probably the latter will almost entirely displace the former. Several cases of the successful use of Senn's plates have been placed on record—*e.g.* **T. J. Walker** (*Lancet*, Jan. 20, 1894), **Hott** and **Walsham** (*Lancet*, Mar. 3, 1894), etc. It has been suggested that where the decalcified bone plates are not at hand when required, their place can be readily taken by plates cut out of a turnip, and threaded in a similar manner.

*Appendicitis*.—The whole subject is fully discussed by **G. R. Fowler** in a series of papers (*Annals of Surgery*, Jan.—May, 1894). He maintains that in every case a surgeon should share the responsibility of treatment with the physician, and that the treatment should be mainly surgical. He strongly inveighs against the use of opium, and considers that an operation should be performed in all cases where symptoms of a progressive inflammation



persist after twenty-four hours, not only on account of minimising the risk of general peritonitis, but also because after that period the appendix may be so surrounded by inflammatory lymph as to render its removal, which he thinks the most important item in the operation, almost impracticable. Such a statement represents tolerably accurately the opinion of American surgeons, a position which is not accepted by the majority of British medical men, although, possibly, better results might be obtained if the practice of the latter was approximated a little to that of their American *confrères*. In operating, either a vertical or an oblique incision is recommended; the greatest care must be exercised to avoid infection of the general peritoneal cavity where this has not previously occurred, whilst the search for the appendix is made with the patient in the Trendelenburg position. If firmly bound down by lymph, Fowler still recommends a search for the appendix, and removal of, at any rate, the affected portion; if it is placed to the left of the cæcum this may be safely accomplished, but where it turns backwards and to the right, it should be left alone. A somewhat complicated method of its removal is described, which, though useful in cases where there is but little inflammation, must be absolutely impracticable where such a condition exists. The base of the appendix is temporarily strangled by a twisted ligature, and a second ligature is passed and tied around it a little more than half an inch from the first. A circular incision is now made between the two ligatures through the serous and subserous tissues, and a cuff-shaped flap turned back. A fine ligature is made to encircle the remaining part of the tube close to the twisted ligature, and tied, and the appendix cut through and removed. The exposed mucous membrane is sterilised by a touch of the actual cautery or fuming nitric acid, and the cuff-shaped flap is drawn over and stitched together so as to bury the stump of the appendix out of sight. When the appendix is inflamed, it suffices to constrict it at its base by a circular ligature, and then cut the distal portion away, disinfecting the exposed mucous membrane with a touch of pure carbolic acid.

When the appendix cannot be removed, the cavity of the abscess is stuffed with gauze surrounding a drainage-tube, if considered needful. Fowler also recommends the washing out of the stomach after the operation as a means of checking subsequent vomiting, leaving in it an ounce or more of a saturated solution of sulphate of magnesia, if such should be considered advisable.

When general suppurative peritonitis has occurred prior to operation, he looks on the case as almost hopeless, although an

exploratory laparotomy, with washing out of the cavity and drainage, may be adopted.

**McBurney** (*Annals of Surgery*, July, 1894) recommends that in cases of recurrent appendicitis needing removal of the appendix during the intermissions, the abdominal parietes should not be divided, as is usually done, by simply deepening the cutaneous incision, but that the muscular and aponeurotic fibres should be merely separated, and not cut across. The incision recommended is an oblique one, perpendicular to a line drawn from the anterior superior spine to the umbilicus, about an inch from the iliac spine, and situated so that one-third lies above that line. The external oblique fibres, the direction of which corresponds with the incision, are then separated without cutting, and drawn widely apart with retractors. The internal oblique fibres, at right angles to the incision, are also separated with a blunt instrument, and held aside by another set of retractors, exposing the transversalis fascia. There is less bleeding, more accurate closure of the parietal wound can be established, and thus hernia is more effectually prevented; but more assistance is required, and only a very limited deep dissection can be made. For cases where suppuration exists, it is not to be recommended.

**T. R. Jessop** (*Brit. Med. Journ.*, Mar. 24, 1894) read a paper before the Leeds and West Riding Med. Chi. Soc., on *Appendicular Colic*, a condition which has been previously described by a French physician, Talamon, but otherwise almost entirely overlooked. The cause is some narrowing or constriction of the lumen of the appendix, the distal portion of which becomes distended with mucus, and this may even in time suppurate. As a result, attacks of colic ensue, due to the attempt of the tube to relieve itself; these come on very suddenly, being confined to the lower part of the abdomen, and gradually in about a week pass off. A distended bulbous mass, more or less freely movable, can often be felt, and the site of greatest pain is often about two inches above the middle of Poupart's ligament. In two cases Jessop operated and removed the appendix, demonstrating the conditions indicated above. Many cases of so-called "relapsing appendicitis" are doubtless of this nature, and suppuration in or around the tube is almost certain, at some time or other, to follow. Jessop also again emphasises the need of replacing the terms typhlitis, perityphlitis, etc., by appendicitis, and appendicular peritonitis, or abscess, and this change is certainly desirable.

#### **Acute intussusception in children.**

**Barker** (*Brit. Med. Journ.*, Feb. 17, 1894), after giving facts

and figures concerning twenty-five such cases, concludes thus :—

(1) That in all cases of intussusception in children, injection of water or manipulation should be at once resorted to *if the patient is seen within a few hours of the onset* of the strangulation.

(2) That if these means fail after a fair trial, not too much prolonged, laparotomy should be at once performed as the safest treatment.

(3) That there is a certain proportion of cases among all the varieties of intussusception, which no amount of injection will relieve, or in which injection would be dangerous, and these can only be dealt with by opening the abdomen.

He specially emphasises the fact that one of the commonest causes of failure in treatment is that the cases are left too late.

**Bilton Pollard** (*Lancet*, 1894, i. p. 473) records a case treated successfully by laparotomy in an infant seven months old, in which the cæcum had been invaginated into the ascending colon, and then the ileo-cæcal valve and ascending colon followed. Considerable difficulty was experienced in reducing it, but a successful issue resulted.

*Intussusception* treated by generation of carbonic acid gas within the intestine. A case is recorded by **J. T. C. Williams** (*Brit. Med. Journ.*, Apr. 14, 1894) in which a child with typical symptoms of intussusception was treated, after ordinary means had failed, and a cutting operation had been refused, by the injection into the rectum of 3 iss of citric acid and 3 ij of bicarbonate soda, the acid being injected first. Carbonic acid gas was freely generated, as indicated by abdominal distension, the escape of the gas being prevented by holding the nates together. Complete success followed. Such treatment is risky, and can only be carried out in the earlier stages. If gangrene or perforation is threatening, it would be most dangerous.

**Bryant** (*Med. Chi. Soc., Lond.*, Feb. 17, 1894) reported two cases of intussusception of the large intestine, both induced by papillomata, and both occurring in women past middle life, in which after removing the growth, reduction was obtained by inserting the hand into the rectum. He stated that although any excess of violence might cause serious mischief, yet as a rule little difficulty is experienced in insinuating the hand into the female rectum, although in the male it was almost impracticable. He had done this for various purposes in about twelve cases, and in only one had any want of control of the sphincter followed.



### Radical cure of hernia.

The following new methods for dealing with inguinal hernia have been commented on:—

*Kocher's method.*—Case reported. (*Barling : Brit. Med. Journ.*, April 21, 1894). Consists in threading sac after clearing it from cord through a hole made in external oblique over situation of internal abdominal ring. It is then twisted and fixed over the inguinal canal outside the external oblique tendon, lying as in a gutter. Deep stitches are passed through the sac and pillars of the ring, fixing it in position. Advantages claimed:—(1) The lumen of the sac is closed at the internal ring by torsion and sutures; (2) no sac is left in the canal; (3) the presence and pressure of the sac over the site of the inguinal canal supports the parts. *Buchanan* (*Brit. Med. Journ.*, March 17, 1894) reports two or three cases treated by isolating sac, tying it, rolling up into a ball, and fixing it between deep pillars of ring. The obvious objection to such a plan is that the internal ring is kept open instead of being obliterated as in many other forms of operation.

No one method must be depended on in every case. As a general rule the old-fashioned Mitchell-Banks operation is the best, but occasionally it is advisable to open the inguinal canal fully, as in Bassini's method, whilst the use of the sac as a pad across the inner aspect of the internal abdominal ring, as in Macewen's, may sometimes be advantageous.

The presence of a *diverticulum* or *sacculæ* of the bladder in connection with a hernial sac is a condition which must not be forgotten by surgeons who undertake the radical cure, and several instances of this condition have been recorded. *Ernst Michels* (*Med. Chir. Soc.*, April 24, 1894) reported a case which happened to him at the German Hospital, in which what was apparently a thickened hernial sac was removed, but the incidence of hypogastric pain and blood-stained urine within twenty-four hours indicated the nature of the case—viz., that an extraperitoneal diverticulum of the bladder had been removed instead of a peritoneal sac. The abdomen was again opened and the wound carefully sutured, the case subsequently doing well. Michels divided vesical hernia into two classes—the first and most numerous class consists of those cases in which the intraperitoneal portion is drawn into a large hernial sac; the second is much rarer, only five or six cases being on record, consisting in the presence of an extraperitoneal diverticulum, adherent to the exterior of the hernial sac. In the discussion several surgeons narrated similar cases which they had met with.

**W. Rose** has since reported a case (*Lancet*, July 28, 1894) exactly analogous. The patient had experienced difficulty in micturition for some time previously, and had often been forced to hold her water for twenty-four hours at a stretch. The sacculæ was opened, urine escaping, but no trace of muscular tissue was found in the wall. The wound was sutured in the manner in which all extraperitoneal incisions in the bladder should be secured—viz., the stitches included all the tissues except the mucous membrane, so that no foreign body should be present in the bladder upon which phosphatic material might be deposited. The case did very well.

### **Radical cure of umbilical hernia.**

**Bruns** (*Centralbl. f. Chir.*, No. 1, 1894) records a case in which he undertook for this purpose a modification of an operation which Keen has termed "omphalectomy." The underlying idea is the removal of the fibro-cicatricial margins of the opening through which the hernia protrudes. A curved incision, varying in length with the exigencies of the case, is made from the middle line above around the base of the swelling to the middle line below; this is extended through the abdominal parietes and the peritoneal cavity opened. A transverse cut is now made inwards from the centre of this incision, so as to divide the neck and lay the sac open. The contents can be freely and readily dealt with as may be required, and the intestine and omental stump easily returned to the abdomen. A similar curved incision is now made on the opposite side, and the skin over the hernia, the whole sac, and its neck, with the adjacent portion of the linea alba, removed. The wound is closed by deep and superficial stitches in the usual way. The advantages claimed are:—(1) The greater ease in dealing with the hernial contents and returning them into the abdomen; and (2) the greater certainty of gaining consolidation in the abdominal parietes by removing the fibrous structures constituting the neck of the sac. The operation certainly commends itself as a valuable and scientific procedure. **Gersuny** (*Cent. f. Chirurg.*, 1893, No. 43) recommends a similar proceeding, although modified in some of the details, when dealing with a large hernia. A linear incision is made over the sac, which is opened, and the contents reduced after removal of omentum if necessary. The peritoneum is stitched across opposite the entrance to the sac, and then the margins of the opening are removed by incisions extending well into the substance of the recti muscles. To draw these edges together the attachments of the lineæ transversæ to the sheath must be detached.

### **Treatment of gangrenous hernia.**

The treatment of gangrene of the intestine as a result of strangulated hernia is still attracting much attention, and many cases have been recorded by various surgeons in favour of either primary or secondary intestinal suture. **H. W. Page** (*Lancet*, Jan. 13, 1894) records a case of each. The primary excision was done unwittingly, as the parts were so damaged as to be unrecognisable. The cut ends were united by the Czerny-Lembert method, but the patient's general condition was so bad that a fatal issue resulted in two hours. In the second case, a femoral hernia of the Richter type, an artificial anus was first established, and secondary resection and suture were carried out eleven days later, the Czerny-Lembert suture being employed and the case doing well. In discussing the subject, he emphasises the fact that the general and not so much the local conditions may determine the surgeon's line of action. Shock is the great danger. Page thinks that the unnecessary use of the anæsthetic is responsible for many of the fatal results. Practically anæsthesia is only needed during the first incision. When primary resection is out of the question, he recommends division of the constriction, drawing down of the intestine so that if perforation occurs at that level it may be extraperitoneal, and the protection of the peritoneal cavity from septic discharges by a collar of iodoform gauze. Fresh adhesions will readily form in twenty-four hours. **Clutton** (*Annals of Surg.*, 1894, p. 416) recommends primary resection, recording two cases, in one of which twelve inches of gangrenous intestine was removed, suture being performed by the Czerny-Lembert method. Death followed on the sixth day from asthenia, and it was found that a large perforation existed above the line of union, which was soundly healed. In the second case an inch and a half of gut was removed, and the bowel sutured as before. Symptoms of obstruction followed on the sixteenth day, apparently from kinking of the intestine. Laparotomy was performed, an artificial anus established, and an operation for the closure of this was successfully accomplished eighteen days later. After pointing out the risks following this method, he expresses the opinion that possibly the establishment of an artificial anus, and early secondary suture (*i.e.*, on the fifth or seventh day) would be the best practice to adopt. Left later than this, the lower end of the gut tends to contract, and considerably increases the difficulty of the subsequent operation. **Chaput** (*Sem. Méd.*, March 21, 1894) recommends intestinal suture instead of making an artificial anus in all cases where the patient is not profoundly collapsed, and peritonitis is present. A



small perforation may be buried by stitching together two folds of serous membrane over it, whilst a small gangrenous patch may be excised by a diamond-shaped incision and the edges of the wound sewn together without diminishing too much the lumen of the tube. **Lockwood** (*Med. Chi. Soc.*, London, March 13, 1894) reports a case treated with a successful issue by primary suture after strangulation for eighty-one hours. He excised four inches of the bowel, which was very congested and even gangrenous in parts, and united the cut ends by the Czerny-Lembert method. Treves, in discussing the case, recommended that an artificial anus should be made at first, and secondary resection and suture performed after two or three weeks.

**Zeidler** (*Centralbl. f. Chirurg.*, 1893, p. 62) contrasts the death-rate from gangrenous hernia at St. Petersburg, taking the cases up to 1892. Thus in 289 cases, primary resection was undertaken, with a death-rate of 49·13 per cent., whilst in 287 cases an artificial anus was formed, with a death-rate of 74·22 per cent., giving an advantage of 25·09 per cent. to primary resection. Of course, in considering any such figures as these, it must be remembered that resection is undertaken only in the less advanced stages of the disease, and hence a considerable proportion of the cases where an artificial anus is formed must be hopeless from the start.

### **Surgery of the liver.**

**Tricani** (*Rev. de Chir.*, May, 1894) reports a case in which the whole left lobe of the liver was removed for a tubular adenoma, whose origin was probably in the biliary canaliculi. The patient was a man, aged 27, and the tumour, which was painful, could be felt in the epigastrium, being about the size of a man's fist. On exploration the diagnosis of hepatic tumour was confirmed, but to expose it entirely the ensiform cartilage had to be removed, and then it was clear that removal was possible, as it was limited to the left lobe. An elastic ligature was first tied around the base of the mass, and this was tightened from time to time, until on the fourteenth day it came away, but the tumour still remained fixed. After trying to pass a wire ligature around the mass, removal by the thermo-cautery was attempted, but the bleeding was so great that they had to desist. Finally the mass was boldly cut away, and hæmorrhage stayed by the cautery and perchloride of iron. The patient made a good recovery. **Von Bergmann** (*Verhandlungen der deutsch. Gesellschaft für Chirurg.*, xxii. Kongress, 1893) relates a similar successful case of removal of a tubular adenoma growing in the middle line and attached by a pedicle, 10 cm. long and 4 cm. thick. He divided

the pedicle, tying the larger vessels, and using sponge pressure to control bleeding from the smaller.

Zancarol, of the Greek Hospital, Alexandria, in a monograph published in Paris, describes the methods employed and the results gained in the treatment of 562 cases of *hepatic abscess*, treated by him since 1865. Excluding all cases of multiple abscess, which are practically always fatal, he states that his results in cases of single abscess may be thus tabulated :

120 cases operated on by tapping : mortality 72 per cent. ; post-operation fistulæ, 19 per cent.

41 cases operated on by incision, drainage and antiseptics : mortality 62 per cent. ; 17 per cent. post-operation fistulæ.

157 cases operated by his own plan : mortality 29 per cent. ; no post-operation fistula.

His own method consists in exposing the liver by an incision parallel to the ribs, removing if need be portions of ribs, making a small opening into the abscess, inserting the index finger and dragging the liver forwards. It is maintained in this position by sutures, and the cavity is then freely opened by a thermo-cautery so as to expose its surface, which is swabbed out with a solution of salicylic acid (1-1000), and all sloughs removed ; the cavity is then stuffed with iodoform gauze and dressed antiseptically.

### **Surgery of the gall-bladder.**

This has been well illustrated by several communications, showing not only the amount of work which has been undertaken in this region of late years, but also the excellence of the results obtained.

Mayo Robson in a paper read at the International Medical Congress (*Brit. Med. Journ.*, April 28, 1894) gives the experience gained in seventy-eight cases which had come under his own treatment. There were but four fatal results, one due to septic peritonitis arising from a small perforation in the colon caused by separating adhesions unrecognised at the time of operation ; the other three were due to hæmorrhage and exhaustion, and all occurred in patients with deep and prolonged jaundice arising from malignant disease, usually of the head of the pancreas. This is an important observation, as indicating that when such disease can be definitely diagnosed, operative treatment should only be recommended with great care. Robson also states that if malignant disease is present, a perceptible tumour can usually be felt, whereas if the jaundice is dependent on gallstones, the swelling was rarely so definite. He has undertaken sixty cases of cholecystotomy with only three deaths, *i.e.*, with a death-rate of 5 per cent. He performs the whole operation at once, and prefers to fix the mucous

membrane of the gall-bladder to the muscular aponeurosis rather than to the skin. If, however, the ducts cannot be cleared of an impacted calculus, he recommends the following measures: (a) crushing the stone *in situ* by the finger and thumb, or padded forceps, and records three successful cases; (b) incision of the duct, whether cystic or common, and subsequent suture, a most difficult proceeding on account of the depth of the wound, reporting only one case which was fatal; (c) cholecystenterostomy or the formation of an artificial communication between the bladder and the intestine, an easy matter if the gall-bladder is distended; he has performed this thrice, and with excellent results, using his decalcified bone bobbin: (d) the daily injection of fluids into the gall-bladder through the cholecystotomy wound, using ether, ether and turpentine mixed, olive oil, etc. In cases where it is impossible to appose the visceral and parietal peritoneum owing to fixation of the gall-bladder by adhesions, he recommends the use of a drain-tube packed round with antiseptic gauze; and from the experience of such a measure in the treatment of intraperitoneal abscesses, the surgeon can employ it with confidence.

Excision of the gall-bladder can only be called for in very few cases, amongst them a secondary result of an impacted gall-stone or a suppurative cholecystitis, where the cystic duct has become obliterated, but the common duct is free: at the time of operation it is not uncommonly complicated with a mucous fistula. He records two successful cases.

Murphy, of Chicago, has published as a monograph a paper read by him at the American Medical Association (*Chicago Med. Rev.*, March, 1894), reviewing the same subject, giving some statistics, and emphasising especially the value of his *anastomosis button* (p. 240). This may be measured by comparing the following results: Up to February, 1893, Murphy succeeded in collecting twenty-four cases of cholecystenterostomy, with sixteen recoveries and eight deaths; since June, 1892, twenty-two cases have been dealt with by the anastomosis button, with twenty recoveries and two deaths, and both the latter occurred in cases of cancer. Again, the earlier methods of operation were always acknowledged to be most difficult to perform, and took a considerable time; the anastomosis button renders the operation exceedingly simple, and it often occupies not more than half an hour.

*Gangrenous cholecystitis.* — Hotchkiss (*Annals of Surgery*, March, 1894) gives an account of a case in which a gall-bladder, dilated and containing twenty faceted calculi, one of which was



impacted in the cystic duct, had become gangrenous. A distinct tumour could be felt, and on exploratory incision the whole fundus of the gall-bladder was found black and gangrenous. The patient died in spite of the treatment adopted, viz., packing of gauze around the inflamed area, thus shutting it off from the general peritoneal cavity. It had previously been found impracticable to stitch it to the surface. Suppurative inflammation of this organ probably depends in most instances upon infection from the neighbouring coils of intestine with the *Bacillus coli communis*. As a rule the normal contents of the gall-bladder are absolutely sterile, but whenever the duct is tied or becomes obstructed, the bacillus is shortly afterwards found to be present; and it is well known that in varying circumstances this organism, which is as a rule innocuous, can give rise either to a localised suppuration, or to a most violent diffuse inflammation and even to general septic infection. Probably in this instance the excessive exudation in the sac was the cause of the gangrene, or possibly it may have been due to the constricting effect of surrounding adhesions.

*Abscess of the pancreas.*—**Walsh** (*Med. News*, December 30, 1893) records a case of this affection in a woman, aged 47, who had suffered from epigastric pain and tenderness for six months, together with vomiting and diarrhoea. There was an area of dulness extending from the ensiform appendix nearly to the umbilicus, and she was exceedingly emaciated; the temperature was normal. An exploratory laparotomy was performed, and a fluctuating swelling felt behind the great curvature of the stomach. This was exposed in the usual way, and opened after suturing the parietal peritoneum to the mass, and a pint or more of pus evacuated, together with shreds of pancreatic tissue. Some softened remnants of the head and tail of the pancreas were cut away, and the cavity firmly packed with iodoform gauze. The patient did well, and was discharged on the eleventh day with a sinus communicating with the cavity, which was already much diminished in size.

**Morton** (*Brit. Med. Journ.*, February 3, 1894) records an *intra-abdominal abscess* treated in exactly the same way, which had been caused by a fish-bone perforating the transverse colon; the bone was found and removed after evacuating the pus. A tube was inserted, and the case did well.

*Cyst of pancreas.*—**Durante** (*Intern. klin. Rundschau*, 1894, No. 1 and 2) reports a case where a cyst of the pancreas was found to be due to obstruction of the duct by a round worm.

*Abscess of the spleen.*—**Nolen** has described a case in which he successfully treated this condition (*Weekblad von het Ned.*

*Tijdschrift voor Geneeskunde*, March 10, 1894). It occurred in a woman six weeks after confinement, being ushered in by chills and fever, together with pain in the side, enlargement of the spleen, which however was not tender, and localised pleuritis. An incision was made along the left linea semilunaris, and the cavity opened without encroaching on the peritoneum. About a litre of dull brown pus with a faint sweet smell escaped; the wound was plugged with gauze, and rapidly healed. Only five such cases of recovery following incision of a splenic abscess are on record.

# ORTHOPÆDIC SURGERY.

BY W. J. WALSHAM, F.R.C.S.,

Senior Assistant-Surgeon, Lecturer on Anatomy, and Surgeon in Charge of the  
Orthopædic Department, St. Bartholomew's Hospital.

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## 1. The treatment of severe club-foot.

Moore (*Australian Med. Journal*, April, 1894) advocates Fitzgerald's operation with, in certain cases, the division of the bones of the leg or of the femur or of both, as the best treatment. After performing Fitzgerald's operation, Moore turns up a semilunar flap of skin and subcutaneous tissue over the inner surface of the tibia, the attached base of the flap being about two inches above the ankle. Just below the base of the flap the periosteum is divided transversely, and then the bone is cut completely through by Macewen's osteotome. The fibula is next divided by the osteotome, and the foot rotated outwards to a sufficient degree, and the inner border at the same time lowered by leaving a gap between the divided ends of the tibia at its inner border, exactly as is done when the femur is divided for genu valgum by Macewen's operation. The advantages claimed for raising a flap are that it enables the bone to be reached more directly and so to be divided more completely and evenly, and that the fracture does not come directly into contact with the skin incision. By having the bones completely and evenly divided, they can be more easily rotated or otherwise manipulated into the required position. Moore thinks that Fitzgerald's operation is the most efficient and the least formidable of all efficient operations for severe club-foot, and that in some cases division of the bones of the leg is imperatively demanded.

He further maintains that many cases of talipes that are now *really cured* by mechanical treatment at the cost of great trouble to the medical attendant, of much time and trouble to the mother, and of considerable suffering and inconvenience to the child would be successfully treated by Fitzgerald's method at much less cost of trouble, time, suffering and inconvenience to all concerned. With the last opinion, the reporter can hardly agree. His experience of Fitzgerald's operation, it is true, has been limited, but in the discussion that followed the reading of Moore's



paper, it was remarked by Bird, who had assisted Fitzgerald in his cases, that there was a slight woodeny condition of the foot on its outer side which was unavoidable after this operation, and Kent Hughes called attention to ankylosis of the astragalo-scaphoid joint in one of the cases exhibited. Now a foot really cured by orthopædic apparatus, aided if necessary by anatomy or even syndesmotomy, is practically a perfect foot. Such, however, is evidently not the case after Fitzgerald's operation. The latter method should therefore hardly be substituted for the former on the score of time, trouble, and expense. In certain intractable and relapsed cases Fitzgerald's operation combined with division of the bones of the leg would appear to be a useful procedure. At the same time, it does not follow, as some Australian surgeons would seem to think, that it is an efficient substitute for astragalectomy, etc., in all cases.

**Wilson.** "An analysis of 435 bone operations by 108 operators for the correction of severe club-foot." (*Transactions of the American Orthopædic Association*, vol. vi.) The inquiry was undertaken by Wilson to ascertain, 1, Whether, as often stated to be, the mortality, after bone operations for club-foot, is a high one. 2. The age when the operation was deemed advisable or expedient. 3. The form of operation generally selected or the amount of bone-tissue deemed necessary to remove to obtain correction. 4. Whether joint-motion or ankylosis was sought. 5. Whether subsequent orthopædic apparatus was required. 6. Whether the general usefulness of the foot was better than could be obtained by other means.

1. Out of the 435 cases there were only three deaths from septicæmia, three from diarrhœa, and one from carbolic acid poisoning. The mortality was therefore 1.6 per cent. 2. The age varied from three weeks to forty-seven years.  $53\frac{3}{4}$  per cent. were operated on prior to ten years of age; 29 per cent. prior to six years of age;  $6\frac{2}{3}$  per cent. prior to the age of two; 2.9 prior to the age of one year. 3. Excision of the astragalus only was done in 156 cases; excision of the astragalus with other of the tarsal bones, entirely or in part, in 274 cases; excision of a wedge of bone from the tarsus, in 78. Various other bone operations too numerous to mention in the remainder. 4. Under this head no information was obtained. 5. With comparatively few exceptions, some form of apparatus was subsequently used. 6. In forty cases the operation was of no benefit.

**Sherman.** "The after-treatment of varus." (*Transactions of the American Orthopædic Association*, vol. vi.) For cases of varus in which, during the after-treatment, the foot still shows a

tendency to roll over on the outer edge, Sherman uses a curved steel strap set flush with the sole and extending out beyond the outer edge of the boot like an outrigger. This outrigger very effectually checks the tendency to roll over until the joint-surfaces are readjusted in their normal relations, and the tread is plantigrade. The boot itself should have the outer border of the sole thicker than the inner, so as to throw the foot into the valgus position.

## 2. The treatment of acquired talipes.

**Broca.** "Arthrodesis or the production of bony ankylosis for talipes following infantile paralysis." (*Revue d'Orthopédie*, March, 1894.) Broca has done ten operations of arthrodesis for club-foot due to infantile paralysis, and publishes an account of eight, the other two being still in plaster of Paris. He sums up his experience of the operation thus:—When the tendo Achillis is contracted so that it prevents a perfect rectification of the equinus, the first step is to divide it, which M. Broca does by the open incision, and sutures the skin before proceeding further. In his first case, tenotomy and the arthrodesis were done through the same incision, and much difficulty was experienced in that the incision was found to be too far forward for the one, and too far backwards for the other. The incision is best made along the anterior border of the fibula and malleolus, and then curving it downwards and forwards over the dorsal surface of the foot. The soft parts being raised and retracted, the external ligaments of the tibio-tarsal joint are severed. The astragalus is dislocated outwards by wrenching the foot, and its superior, external, and internal surfaces are bared of their cartilage by a sharp curette, portions of bone being taken away at its anterior end to overcome the equinus if necessary. The tibio-fibular surface is next bared of cartilage and dealt with in the same way. Through the same incision the medio-tarsal joint can be likewise denuded when indicated. To do this, all that is necessary is to cut the superior ligament of the joint and the Y ligament. The bared bone-surfaces are put back without either suture or pegging. The wound is completely closed by suture and covered with a light dressing of antiseptic gauze. The foot is put up at a right angle with the leg in plaster of Paris. The immobilisation is maintained for six weeks. All the cases when seen several months after the operation were cured or improved, and in an infinitely better state from a functional point of view.

**Renault.** "Tibio-tarsal arthrodesis in paralytic club-foot." *Thèse de Paris*, 1893 (*Revue d'Orthopédie*, Jan., 1894). The author reviews the methods of performing this operation and the

indications for it. Of the three methods of exposing the joint, anterior, internal and external (see "Year-Book, 1894," p. 257), Renault, with Schwartz, Rieffel, Phocas and others, is in favour of the external, for the advantages of which see "Year-Book, 1894." He agrees that it is not necessary to peg or suture the exposed bony surfaces together, nor is it necessary to cut away the synovial membrane as advised by **Albert**. The scoring of the bone recommended by **Döllinger** appears merely to delay the operation, and is not requisite for securing bony ankylosis. The chief indication for this operation is the complete loss of use of the limb as evidenced by absence of muscular contraction. The operation therefore should not be undertaken till electrical treatment has been employed for long periods, and until it is certain that no power in the affected muscle remains. The operation is especially indicated in so-called flail-foot, and when the foot is permanently fixed in a faulty position and cannot be rectified by tenotomy.

**Phocas.** "Musculo-tendinous transplantation in paralytic calcaneo-valgus" (*Revue d'Orthopédie*, Nov., 1893). The operation was undertaken in a child who could not adduct the foot, the tibials having lost their power of contraction or become almost useless. Since the foot could be plantar-flexed to a certain degree at the mediotarsal joint, Phocas considered arthrodesis unjustifiable, but conceived, as the extensor muscles of the toes showed signs of vitality, that these might be made to do the work of the adductors. He therefore made an incision 5 centimetres long between the tibialis anticus and the extensor proprius hallucis. The tendon of the tibialis anticus was exposed, divided, and its proximal end hooked up. The extensor proprius and its tendon were then exposed, and at the spot where the muscle joins its tendon a button-hole was made in the muscle, and into this was inserted and sutured the distal end of the tibialis anticus. The proximal end of the tibialis anticus was then sutured to the tendon of the extensor proprius hallucis. The dressings were removed at the end of three weeks and the wound was found healed. The child walked better, and the valgus was lessened, but the foot still turned outwards. Flexion of the foot when at rest still caused a slight valgus, which could be easily rectified by the hand. Although success was not complete from a therapeutical point of view, Phocas considers that the operation is the ideal treatment for paralytic club-foot, inasmuch as the lost power of the paralysed muscle is supplied by healthy muscle.

**Nicoladoni** (*Archiv für klinische Chirurgie*, bd. 27, hft. 3) has performed a similar operation for paralytic calcaneus by grafting the peroneal tendons to the tendo Achillis. The patient



was 16 years old, and had suffered from infantile paralysis since the age of 2. The power of plantar-flexion was completely lost, but the tibials, anterior extensors and the peronei responded to electrical tests. An incision having been made along the lower end of the fibula and another at right angles to it so as to allow of a flap being dissected up to expose the peronei and tendo Achillis, the peronei were divided opposite the middle of the external malleolus, freed from the bone and inserted graft-wise into the tendo Achillis. A large surface of the tendons was thus placed in apposition and there secured by sutures. The method of grafting resembled that employed by gardeners when they insert a young graft into the stock. The result of the operation was reported as favourable. On applying the faradic current to the peronei, plantar-flexion of the foot was produced, proving that union between the peronei and tendo Achillis had taken place. The lad could walk better than before the operation, and his walking powers were gradually improving.

**Gérard-Marchant.** "Osteotomy of the fibula and resection of the internal malleolus for a badly-set Dupuytren's fracture (*Revue d'Orthopédie*, Jan., 1894). The patient had sustained a Dupuytren's fracture by falling with his leg beneath his horse. The limb was immobilised in plaster for twelve weeks. At the end of that time he could not walk on account of the pain that was caused; also because the plantar surface of the foot could not be brought to the ground, but only the internal border; also because the limb was stiff. There was an indentation of the fibula at the usual situation, and a projection of the internal malleolus. The whole foot was everted; the plantar surface looked outwards; the foot rested on the ground only by its internal border. The axis of the tibia if prolonged would have fallen on the inner side of the great toe and cut the internal plantar border almost at its middle part. The foot was no longer at a right angle with the leg, but was plantar-flexed. The movements at the tibio-tarsal joint were restricted and very painful. For this condition osteotomy of the tibia and fibula was practised. An H-shaped flap was made down to the bones over the front of the leg, one vertical cut being behind the fibula, the other behind the tibia. Both were 9 centimetres long, and were continued on to the sides of the foot. The transverse branch of the H was just below the tibio-tarsal joint. The superior and inferior flaps were turned down and the bones bared carefully of periosteum. The fracture, as evidenced by a mass of callus, was then discovered running obliquely from above downwards and from within outwards. Macewen's osteotome was applied to the callus at the most antero-external

spot, and the callus cut through in the direction taken by the former fracture. As this did not permit of the foot being replaced, the osteotome was applied in a direction parallel to the first cut, and a slice of bone several millimetres thick was taken away. The foot could now be replaced inwards, and by cutting off the portion of the malleolus which projected on the inner side, the appearance of the foot was much improved. The foot was put up in plaster in an exaggerated position of adduction at a right angle, in order to overcome the equinus. The patient at the date of publication was able to walk with a stick with his sole flat to the ground, and was daily improving.

In two similar cases the reporter has corrected the deformity by osteotomy of the fibula and the removal of a wedge-shaped piece from the tibia just above the external malleolus. Both patients were greatly improved.

### **3. Treatment of club-hand.**

R. H. Sayre (*Transactions American Orthopædic Association*, vol. vi.) describes a new operation for severe club-hand. The radius and thumb were absent and a certain number of the carpal bones, but which exactly he could not determine. The ulna was curved in its middle, at an angle of about  $30^{\circ}$  towards the side where the radius was absent. The hand was almost at a right angle with the forearm, bent towards the radial side, and flexed on the forearm. The carpus did not articulate with the ulna, but was attached to it by means of firm ligamentous bands. Sayre first did osteotomy of the ulna to correct the curve, and after it had firmly united in a straight line, he endeavoured to stretch the contracted tissues on the radial side by adhesive plaster attached above and below the wrist and passing around the ends of a wooden splint fastened to the forearm. Considerable elongation of the contracted tissues having been thus obtained, the lower end of the ulna was exposed, but it could not be made to clear the carpus. The os magnum and unciform were therefore removed; the scaphoid and semilunar apparently did not exist. The tip of the styloid process of the ulna was next excised and the end of the bone inserted into the gap in the carpus left by the removal of the carpal bones. The parts were then placed on a straight splint and passive movement begun at the end of three weeks. The patient's ability to grasp objects and his control of the motions of his hand were greater after the operation than before, whilst his appearance was much improved. These cases of so-called club-hand differ widely in their morbid anatomy. In some tenotomy, manipulation and apposition will suffice greatly to improve the appearance and usefulness of the hand; in

others in which there is absence of one or more of the bones of the carpus and one of the bones of the forearm some such operation as that above described will be found useful, but each case, seeing how different are the anatomical conditions, must be judged by itself.

**Ménard.**—"The Surgical Treatment of Paraplegia in Pott's Disease by Direct Opening of the Tuberculous Cavity" (*Revue d'Orthopédie*, Nov. 1, 1894). Ménard holds that laminectomy for paraplegia is counter-indicated in the majority of cases both by clinical and anatomical considerations. He has met with only three cases in which this operation appeared to him justifiable, and in none of these was the removal of bone of any benefit. In the first case the patient died eight months after treatment; no improvement in the paraplegia had been perceived. In the third case no benefit was apparent at the end of two months and a half. In the second case, however, the accidental opening of a tuberculous cavity during the operation completely removed the pressure on the cord; the paralysis began to pass off almost immediately, and two months afterwards the patient could walk without support. That the cure of the paraplegia was attributable to the accidental opening of the tuberculous cavity and not to the laminectomy is confirmed, Ménard thinks, by the sequel in the third patient. Here after two and half months, as the paraplegia was still unrelieved, the tuberculous cavity was deliberately opened by removing the transverse processes and searching for the abscess in front of the vertebræ, and this was followed by immediate and progressive restoration of the motor and sensory powers of the lower limbs. The operation for exposing the tubercular cavity consisted in making a transverse incision over the right vertebral groove corresponding to the most prominent part of the angular projection. The muscles having been divided, and the transverse process and the vertebral end of the corresponding rib having been exposed and bared, the transverse process was first cut through with bone forceps and then removed; next, the rib was divided a little external to the tip of the transverse process and the proximal end easily brought away. The transverse process and rib below were dealt with in a similar manner. Through the opening thus made the finger was introduced and caseous material was scraped away with a curette, &c. The cavity was then washed out with a solution of corrosive sublimate, a drainage-tube inserted, and the wound partially closed. There was no flow of any liquid material. The paraplegia rapidly disappeared. At the time of publication a short sinus still remained.



**Thorburn.**—"Surgery of the Spinal Cord and its Appendages" (*British Med. Journ.*, June, 1894) gives the following as the indications for laminectomy in paraplegia from spinal caries:—

1. A steady increase in symptoms in spite of favourable conditions and treatment.
2. The presence of symptoms which directly threaten life, as, for example, secondary chest troubles, intractable cystitis.
3. Posterior caries, that is, caries of the arches of the vertebræ.
4. Severe pain not relieved by ordinary measures.

With regard to the persistence of symptoms in spite of complete rest, the indication which has been most commonly adopted, Thorburn truly says such symptoms may persist for very long periods and then yield to absolute rest. As counter-indications to the operation he mentions:—

1. Active tubercular changes in other organs as shown by pyrexia. Where, however, the pyrexia is clearly due to cystitis, it is an indication for rather than against interference.
2. General meningitis, although fortunately very rare, will at times obviously be present, and will probably prove fatal whether we operate or not.
3. Cases of fracture following upon caries and most paraplegias of sudden onset.

#### **4. New method of subcutaneous tenotomy of the tendo Achillis.**

**Phelps** (*New York Medical Journal*, Feb. 24, 1893) inserts the tenotome into the tendon, and "splits the tendon an inch and a half subcutaneously, and then cuts out on either side of the tendon above and below, allowing it to slip by and lap." The operation is ingenious, but quite unnecessary. After the ordinary division, even though as much as an inch or more should be left between the divided ends, perfect union results. In one case of the reporter's, after division of the tendo Achillis, a gap of two inches was left, but the patient was able to walk at the end of a fortnight, an abundance of strong uniting material having been formed in that tissue between the divided ends. Syme, it is said, was in the habit of allowing patients to walk within three days after division of the tendo Achillis, and experienced no ill result therefrom.

#### **5. The treatment of lateral curvature of the spine.**

**Weigel** ("Pressure-correction and gymnastics in lateral curvature," *Transactions of the American Orthopaedic Association*, vol. vi., 1894) holds that gymnastic exercises alone, or connected with mechanical support, have, after extended trial, been found unsatisfactory and disappointing in advanced cases. As long as the spine is held firmly fixed in its distorted condition, restoration of form is out of the question. Efforts should therefore be

directed towards increasing the flexibility of the spine in every possible way. The means hitherto employed to bring this about have not been adequate. Pressure-correction offers an efficient and promising method of treatment. Weigel has modified and improved the machines for pressure-correction that have been devised by Hoffa, Schede, and Bradford and Brackett. His machine consists of a steel frame eight feet high and thirty inches wide, made of rods three-quarters of an inch in diameter, two on each side, three inches apart, connected by two tie-pieces, and ending below in iron legs. The upper curved segment telescopes into metal sleeves, and may be secured at any point. Upon the vertical parallel rods two metal blocks slide, which may be securely clamped at any height. The lower blocks carry a mechanism, adjustable laterally and antero-posteriorly for fixing the pelvis. The counter-pressure bar to be placed in the axilla, on the concave side is held, in position in one of the upper blocks. Between these blocks the semi-circular steel bands that carry the pressure-screws and anterior shoulder-piece are placed, one in front and one behind. The anterior band is pivoted so that it may be swung open for the purpose of placing the patient in the machine. Upon the steel bands sliding slips are placed for holding the vertical rods which carry the pressure-screws and the anterior shoulder-piece. The pressure-plates are attached to the distal ends of the screws in such a way as to permit of a certain amount of play, so that they may adapt themselves readily to the selected point of pressure. The upper part of the apparatus is provided with adjustable hand-pieces, and an ordinary suspension arrangement. All adjustable parts of the apparatus are firmly secured in position by capstan-head screws, which obviate the use of a wrench or other tool.

The patient is placed in the machine and is daily subjected to pressure for from twenty minutes to half an hour. The pressure must be applied in the proper direction, so as to obtain a distinct rotary effect. It is usually advisable to place the posterior pressure-screw directly over the apex of the convexity, in a direction corresponding to the oblique diameter of the chest, the anterior screw being placed at an opposite point in front. Sometimes it is necessary to use two posterior screws when there is a marked double curve; and some patients feel more comfortable by placing an extra plate against the sternum.

Weigel considers the plaster of Paris jacket the best means of maintaining the degree of correction gained by the use of the machine. Such a jacket must exercise a corrective force, besides acting as a mechanical support. Bradford and Brackett apply a

fixed jacket while the patient is still in the apparatus. Weigel applies a plaster jacket immediately the patient is taken out, as he has found that the correction obtained by pressure is not immediately lost. The plaster jacket is cut off and made into a removable corset, and one that, though uncomfortable at first, makes considerable pressure on the convexity of the curve, and maintains the effect secured in the apparatus. This jacket should be worn at night as well as during the day.

### **6. The treatment of congenital dislocation of the hip.**

**Bradford** (*Annals of Surgery*, August, 1894) in a paper on this subject concludes (1) that the methods of treatment by traction or by mechanical means, crutches, splints, recumbent traction with or without tenotomy, do not effect a cure; (2) that correction by means of forcible reduction without incision (Paci's method, see "Year-Book" 1892, p. 265) can be applicable in but few cases and is not reliable; (3) that the method of operative reduction offers the best prospect of a cure; (4) that the operative method at present involves risks, and is not certain in its results; but that it is to be expected that further experience will give greater precision and more certain results as no inherent difficulties lie in the way of operation; (5) that the shortening of the muscles and the shortened condition of the anterior bands of the capsular ligament (the Y ligament of Bigelow) form an important obstacle to complete reduction, and that these fibres should be thoroughly divided; (6) that these fibres can be more thoroughly divided by incising them in front than from behind.

**Kirmisson** ("Sub-trochanteric osteotomy in certain cases of congenital dislocation of the hip," *i.e.*, flexion of the thigh with considerable adduction, *Revue d'Orthopédie*, March, 1894) has practised sub-trochanteric osteotomy in four cases of congenital dislocation of the hip in patients of sixteen, thirteen, eleven, and seventeen years of age, ages at which Hoffa's operation is not applicable. In some of these advanced cases the head of the bone recedes more and more on to the dorsum of the ilium, and gliding from before backwards causes a flexion combined with considerable adduction, whence arise lordosis, the impossibility in some cases of separating the knees, perhaps excoriations produced by rubbing the knees together, and even the necessity of crossing the knees one in front of each other during walking and standing. It is in the cases where adduction is so great and so permanent that Kirmisson has had recourse to sub-trochanteric osteotomy. By its means marked separation of the thighs has been gained and the lordosis much benefited.



Cases for which this treatment is applicable must be exceedingly rare (Reporter).

### 7. The treatment of hallux rigidus.

The question of the best treatment of painful great toe, hallux rigidus, hallux flexus or hallux dolorosus, as it has been variously called, has again been raised during the last year. Collier (*Lancet*, June 30th, 1894); Cotterell (*Lancet*, July 21st, 1894). Mayo Collier, who calls the affection a comparatively rare one, advocates the removal of the head of the metatarsal bone. Cotterell, who on the other hand considers it a very common one, advises in all but the most severe cases the stretching of the shortened ligaments, breaking-down of any adhesions under an anæsthetic, and the subsequent keeping up the gained power of dorsi-flexion by daily passive movement. In addition he treats the flat-foot which is always associated with the painful toe. He has found this treatment sufficient after a few days in almost every case to enable the patient who had, maybe, limped into the hospital in great pain, to walk any distance in absolute comfort. In an obstinate case he performed Davies Colley's operation of removing the base of the first phalanx, an operation which he considers preferable to removal of the base of the metatarsal bone in that it is less likely to interfere with the tripod strength of the foot. In severe cases where the milder measures fail and an operation is for certain reasons counter-indicated, the patient can be made to walk comfortably by adopting Professor Chiene's plan of inserting a rigid metal plate in the whole length of the sole of the boot, so as to prevent any possible strain on adhesions or shortened ligaments in attempts at dorsi-flexion in walking.

The Reporter agrees with Mr. Cotterell that the affection is a common one. It is seldom that a case does not present itself at the weekly orthopædic clinique at St. Bartholomew's Hospital. He has never, however, had occasion to do an operation for the condition except where there has been permanent valgus or marked flexus present. The relief of the flat-foot and the use of a sufficiently long and roomy boot to allow of the absolute removal of any constriction of the great toe has been found quite sufficient.

# SURGICAL DISEASES OF CHILDREN.

BY EDMUND OWEN, M.B., F.R.C.S.,

*Senior Surgeon to the Hospital for Sick Children, Great Ormond Street, and Surgeon to St. Mary's Hospital, London.*

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## **I. The surgical treatment of diphtheria.**

The subject of diphtheria—one of intense interest and importance in the surgery of childhood—has of late been attracting an unusually large share of attention. The new methods of treatment with which the names of Aronson and Roux are associated, but which are the direct outcome of Behring's researches on immunity, are dealt with fully in another place. (*See Infectious Fevers*, p. 162.) Here I can touch on the subject only as far as it falls within the domain of surgery.

**Athel J. H. Saw** reports six cases of tracheotomy for diphtheria treated by Aronson's antitoxin diphtheriæ (*Lancet*, Oct. 13, 1894). The cases had occurred in the preceding two months, and were apparently cases of ordinary severity. Tracheotomy was performed on admission in every case except one, in which it was postponed for twenty-four hours. No antiseptics were applied to the pharynx, but the wound was sprayed with a solution of perchloride of mercury (1 in 1000). The ages were respectively, eleven months, five years, six years, one year and seven months, five and a half years, and seven years. With the exception of the infant of eleven months, they all made a rapid recovery. After the fourth or fifth day, the membrane, which previously had come up abundantly through the wound, ceased to form, and the wound was allowed to close. In none of the cases did the wound become unhealthy, neither was there any cellulitis of the neck, although on two occasions the neck showed signs of swelling the morning after the operation. A striking feature of the cases was that by the third or fourth day after the operation the patients' general condition had completely changed. They were bright, took interest in their surroundings, and played with their toys.

With regard to the fatal case, the infant was only eleven months old, and was moribund when admitted. The operation was performed without an anæsthetic, the patient not stirring,

and death occurred the following morning. A necropsy showed that the membrane extended into the secondary divisions of the bronchi.

The proportion of recoveries at St. Mary's Hospital during the past twelve months in tracheotomy for laryngeal diphtheria (without antitoxin) has been 30 per cent. For twelve years no child under two years of age had recovered. In this series it will be noticed that there was one child of one year and seven months. The plan adopted was to inject subcutaneously with antiseptic precautions ten minims of Aronson's antitoxin diphtheriæ at intervals of twelve hours for three doses. After that no more was given. In not one of the cases was there any inflammation at the seat of inoculation. There was no doubt about the diagnosis in any of the cases. This is certainly a very striking and promising record, and I confess that it has impressed me considerably. But those who followed the early reports of the Koch treatment for tuberculosis will not have forgotten the dazzling—the almost convincing—accounts of “successful cases,” with which the early experimentations with the tuberculin were heralded. As in that, so in other diseases, the fortunate cases are blazoned forth—even, I regret to say, in the lay papers—whilst the unsatisfactory and fatal ones are lost sight of or ignored. *Væ victis!*

But I can remember an occasion on which a house surgeon at St. Mary's Hospital had five consecutive tracheotomies in children with diphtheria convalescent in the wards at the same time. What an impression would his report have made had the children been treated by some new method! As it was, his successful record was never published. All cases are not of the same virulent nature, just as all outbreaks of diphtheria are not of the same intensity.

I am not suggesting, or even giving a veiled hint, that I do not believe in Roux's antitoxin treatment. Simply, I do not know. And agnosticism does not imply a scornful lack of fidelity. It means that the individual awaits evidence and conviction. Most sincerely do I hope that this evidence of the real value of antitoxin will be forthcoming. In the meanwhile, every practitioner will do well to follow the example of a well-known politician, who, in cases of doubt or difficulty, kept his mind “open.” These are yet early days for forming—in England, at least—a definite opinion upon the subject. It is difficult at present to obtain the antitoxin. But, probably, long before the foundation stone of the British Institute of Preventive Medicine is laid, Roux's method will have obtained a sure and certain



position amongst our therapeutic measures. Or, at any rate, it will have been widely and honestly tried.

## 2. Recumbency in the treatment of Pott's disease.

John C. Schapps, of Brooklyn, N.Y., who is a strong advocate of recumbency in the treatment of Pott's disease, read a paper upon the subject at the recent Pan-American Medical Congress:—

“Recumbency as a therapeutic measure means mechanically more than simply putting a patient to bed. It implies protection from traumatism and retention of the whole spine in the best possible position, so that the relations of the separate parts remain unchanged, or subject to those changes only which by the use of pressure and traction the surgeon may make.

“Traction is particularly efficacious in cervical or high dorsal disease, and usually may be applied by means of a head sling.



Sling for extension in Pott's Disease (Schapps).

(See Figs.) To the rings of this is attached a stout cord, which passes over a pulley and is fastened to a weight. It is well to have several of these slings made of drilling and lined with flannel, or made altogether of the latter, and with straps of webbing instead of leather. They can be washed when soiled, and are more comfortable. The figures show a form of headpiece which is easily made, and answers very well in cases when a light weight is to be used and the occipital projection is well developed; it has the merit of not interfering with the lower jaw. It consists simply of a piece of webbing an inch wide, a buckle, and two inch-and-a-quarter iron harness rings. So long as the weight is pulling, the web has a good hold. After the ring has adjusted itself, the two layers of webbing are to be stitched together where they cross. I sometimes add a strap to pass from ring to ring under the chin. It can be removed, so that the patient may eat, without entirely intermitting the traction. As compared with

the other headpiece, this one has the disadvantage that the patient can slip it off when the nurse is not looking. When the case is acute, however, he is not likely to do so. The feet are placed from an inch and a half to four inches lower than the head, so that the greater mass of the trunk and lower extremities affords a good base for counter-traction. The amount of weight is to be regulated by the patient's feelings. From half a pound to four pounds, in case of a young child, is sufficient to counteract muscular spasm and render him comfortable. In the middle and lower dorsal disease, traction is not so efficient."

### **3. Spinal caries and pressure-effects.**

The active treatment of advanced and complicated cases of Pott's disease is just now attracting a considerable amount of attention. Some of our most advanced—I will not say aggressive—surgeons are for operating upon almost every paralytic child; others more conservative in their views would treat all cases by prolonged rest. Are both classes of practitioners right? Are they both wrong? Does truth lie with these or with those? Or is it half-way between them? Here is a string of questions which it is very easy to put, but, honestly, not one of which am I able to answer. To criticise in an unfriendly spirit the imperfect results or the manifest failures of those who are much given to operating for the relief of pressure-symptoms is obviously wrong. None of us can lay claim to absolute knowledge in these cases, and those who now are performing speculative operations on these children may thereby be laying the foundation for work which will stand for ever. I have seen children recover the use of their affected limbs when no operation has been done, as I have seen others sink into the grave with the symptoms unrelieved after lengthened periods of rest. Then, again, some children show most excellent results from the operation of laminectomy, whilst others sink under it, or continue their miserable existence uninfluenced by it either for good or for evil. My own practical experience of the operation has been so limited that I am unable to speak with any authority on the subject. Many surgeons, whose opinions I value highly, say that they have seen no real advantage obtained by operating. But if no advantage is forthcoming, the operation cannot but be harmful, I think, on account of the importance of the elements of the spinal column which are removed in the operation.

Parkin commences a very interesting series of six reports (*Brit. Med. Journ.*, Sept. 29, 1894) with the frank admission that there is great divergence of opinion at the present time as to the value of laminectomy in cases of paraplegia due to spinal caries;

whilst some maintain that extension of the spine for a lengthened period, in some instances for one or two years, results in recovery, others rely upon an early laminectomy, with removal of the cause of the paraplegia. Statistics are of little use in deciding the point in question, for they include isolated cases, and they take no count of failures that have not been put on record. There is one paragraph in the essay which would, I think, be improved by a little modification: "As for the stability of the spinal column, the laminae and spines are in no way utilised in the normal subject for bearing the weight of the body, and I personally fail to see how their removal can affect a function which they do not possess. It is obvious, however, that the disease for which laminectomy is done may considerably interfere with the stability of the spine; hence the obvious conclusion—if possible, remove the disease."

The statement is almost, but not quite correct, that the laminae and spines are in no way utilised in the normal subject for bearing the weight of the body; but in the subject of angular deformity, the result of caries of the vertebral bodies, these pieces of bone are of unusual importance. As the spine is yielding in the antero-posterior plane, Nature strengthens the column by consolidating the laminae, and even the spinous processes in severe cases, by fusing them together with osseous cement. The dry specimens in our museums show this abundantly; the spinal column being providentially supported in what was previously its very weakest part. Now, if we take away half-a-dozen of the laminae from the vertebrae which are falling together, on what is the column subsequently to depend for its support? In the integrity of the posterior arches of these vertebrae was their only security.

Parkin's conclusions in reference to the value of laminectomy in these cases are unusually sanguine; they are as follow:—

1. That extension and counter-extension of the spine, however carefully applied, have little or no effect on cases of paraplegia.

2. That, as a rule, laminectomy has an immediate effect on the paralysis when due to caries of the spine, and that most cases so treated recover entirely from their paralytic symptoms.

3. If the tuberculous focus can be eradicated from the vertebrae, there is every prospect of the result being permanent; otherwise relapses may take place, or further tuberculous troubles may arise, as in tuberculous disease elsewhere.

4. It is possible by means of laminectomy considerably to improve cases of severe deformity from spinal disease.



5. That advanced cases of spinal caries, in which it is probable that a caseous mass exists, may be greatly benefited by laminectomy and the direct treatment of the diseased focus.

6. That the operation itself is not a difficult one, unless there is grave respiratory trouble. It does not interfere with the future stability or mobility of the spinal column; the disease for which such operation is performed may, however, do so.

W. Thorburn, F.R.C.S., in the course of his lectures recently delivered before the Royal College of Surgeons, laid emphasis upon the very rapidly acquired popularity of the operation, and the consequent necessity for careful definition of the indications for its performance, to which question two lectures were mainly devoted. The general mortality of the operation was discussed, and estimated at about 17 per cent. in the hands of surgeons with special experience.

With regard to the pressure-effects in Pott's disease, he gave it as his opinion that the usual condition is one of extra-medullary compression of blood-vessels and lymphatics, with anæmia or œdema of the cord, rarer conditions being paraplegia from peripachymeningitis, fracture of carious vertebræ, tuberculous disease penetrating the dura mater, and angular curvature. The prognosis was fully dealt with, and it was concluded that the very great majority of cases recover without operation, if properly treated, and that operation is therefore seldom required. The indications for such operation were thus restricted to steady increase in symptoms in spite of careful treatment; presence of symptoms directly threatening life; "posterior caries," in which the tuberculous material can be entirely removed; persistent pain; persistence of symptoms after a prolonged trial of fixation and recumbency. With regard to the latter point it was insisted that spontaneous recovery may ensue after paralysis of many months' duration.

At the Lyons Congress of Surgery, in a paper read by E. Kirmisson, of Paris, the question of operating on these paraplegic children was also discussed. The distinguished author remarked that without doubt a certain number of excellent results had been obtained, foremost among which must be cited those of Macewen. "But," he remarked, "side by side with these happy cases, what disasters!"

In a recent and valuable work of 400 large octavo pages, by A. Chipault (*Études de Chirurgie Médullaire*), special attention is given to the operative treatment of paraplegia in Pott's disease. The author, after careful study, has arrived at the conclusion that the results are far from being such as were hoped for. Moreover,

he is fain to submit the opinion that even in those instances in which good results followed laminectomy, equally satisfactory ones could have been secured by less heroic measures.

#### **4. Retro-pharyngeal abscess.**

T. Kitching (*South African Med. Mag.*) commences the report of an interesting case of post-pharyngeal abscess with these remarks:—"I report the following case because I think it may interest the general practitioner and be of use to him in freshening his memory to the existence of a disease which, not being very common, he may have forgotten, and, as in this case, where 'croupy' symptoms were marked, may be led into the mistake of treating a case as essentially laryngeal, and be content to give medicine when prompt surgical interference is called for—a mistake that could be avoided by careful examination of the throat. The medical man who saw this case twice had evidently failed to recognise the true state. The age, I think, is also notable. The child must have been between three and four months when the first symptoms showed themselves. My impression is that these cases are not common. I have now been in practice more than thirty years, and this is my first."

The child was hoarse, had great difficulty in swallowing, and had "croupy" attacks of difficulty in breathing. "On examining with the finger, I found this swelling filling the upper part of the throat, preventing my feeling the epiglottis, and offering considerable resistance. I could not detect any fluctuation. Suspecting it might be a pharyngeal abscess, I decided to puncture, and a considerable amount of matter escaped."

The child did well. Kitching made several examinations for the existence of caries of the cervical vertebræ, but could never detect any.

He concludes: "I find that Owen, in 'Surgical Diseases of Children,' speaks very positively about most of these cases being due to caries. Pollard combats this idea. He says that Bokai collected records of 204 cases which had been observed at the Children's Hospital in Pesth, during a period of 25 years; only seven were due to caries. At the North-Eastern Hospital for Children, during five years, three cases occurred, but no caries could be detected."

Mr. Kitching is quite correct in stating that in another place I gave it as my opinion that most cases of post-pharyngeal abscess in children were dependent on cervical caries. I had seen no inconsiderable number of cases of abscess behind the pharynx, and my experience certainly was that they were generally due to bone disease. But, in this opinion—as in many others, I am glad to

say—time has effected considerable modifications. In a fair proportion of cases, especially in infants and young children, suppuration does take place behind the pharynx independently of vertebral disease. Thus, I have met with it as a sequel of tonsillitis, of influenza, of post-nasal or pharyngeal disease (probably tuberculous), and in miserable infants who seemed to be victims of general malnutrition rather than of classical malady. In such cases downward pressure may be made upon the child's head as he sits up in bed, without eliciting signs of distress. And, the abscess having been evacuated, the head may be painlessly rotated, and the cervical region of the spine inclined laterally to the normal extent. But, even in these children, where perhaps, as in Kitching's case, no bulging can be detected at the side of the neck, the abscess should be reached and drained from the side of the neck rather than through the mouth. The latter and old-fashioned method of evacuation must, without doubt, greatly increase the risk of the intercurrent of septic or tuberculous pneumonia, as well as of general septic infection.

### 5. Acute osteomyelitis.

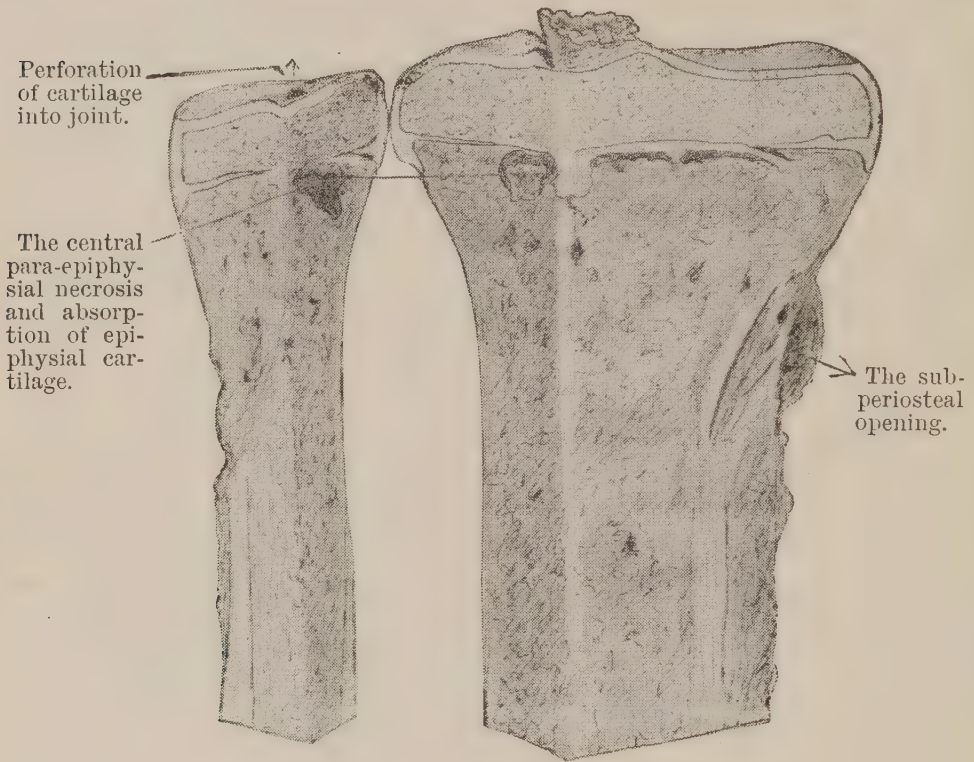
T. Pickering Pick commenced his Hunterian Lectures on "Diseases of the Ends of the Long Bones in Children" by pointing out that in the greater number of cases the disease did not begin in the epiphysis, but in the growing tissue in the end of the diaphysis, on the surface of the epiphysial cartilage remote from the joint. In this situation is a quantity of highly vascular embryonic marrow, undergoing developmental processes, and it could be no matter of surprise that any slight cause should drive this condition of physiological activity into a state of morbid excitement. Another situation where there was great functional activity was at the centre of ossification in the epiphysis, but here the disease was not so common, on account of the facts that this part was less exposed to injury, and that the process of ossification was not so rapid as in the end of the shaft. To these latter cases the term "epiphysitis" might with propriety be applied.

The treatment should comprise free incisions, with the thorough evacuation of the diseased area by the use of chisel, gouge, spoon, and irrigator.

A lecture on this subject by Herbert Page was published in the *Clinical Journal* of Jan. 24, 1894. The case was that of a little girl who, one rather cold summer afternoon, while playing on the pavement of one of the streets near, complained of a sudden pain in her left knee. This pain never afterwards ceased.



Intense tenderness was found on gentle pressure over the inner tuberosity and the adjacent part of the diaphysis of the left tibia. There was some swelling of the soft parts over this region, and a slight redness, with increased heat; but there was no fluctuation. The temperature was  $104.6^{\circ}$  F., and the child was obviously very ill. In spite of every effort to provide adequate drainage by openings in the popliteal spaces of both limbs, the periosteum became more and more separated from the diaphyses, and both



knee-joints became distended with fluid. Amputation of the right leg was performed, and the left leg was very seriously, if not hopelessly, damaged. Examination of the tibia of the amputated limb showed that the upper epiphysis was loosened from the shaft, and that beneath the cartilage were several small sequestra embedded in pus. This focus of suppuration had extended upwards into the epiphysis itself (the central portion of the epiphyseal cartilage having been absorbed), and through the right half of the epiphysis by a narrow sinuous channel into the knee-joint, having perforated the right articular cartilage.

Page urges that the surgeon must be prompt and thorough in his treatment. "His diagnosis made, he must there and then

trephine or gouge into the centre of the para-epiphysial region of the diaphysis; and he must not be diverted from this course by the discovery of pus beneath the periosteum. It is of very great importance to remember this; because in the days when these cases were spoken of as acute periostitis and necrosis, it was thought sufficient to make an incision through the periosteum and let out the pus: nothing was done to the bone, and in consequence very many patients died of pyæmia, the bone itself never having been examined at all."

This important disease was also made the subject of a communication to the Medical Society of Berlin on Nov. 8, 1893, by **Karewski**. He too urged the opening up of the medullary canal, and the thorough scraping out of the affected marrow. He adopted this vigorous and efficient treatment as soon as the diagnosis had become clear, and he expressed the opinion that it was only in this way that necrosis and other serious complications could be avoided.

**E. Küster**, at the Surgical Congress, held last April in Berlin (*Deut. medicin. Wochen.*, May 17, 1894), also urged early operation in these cases. He said that since 1881 he had dealt with twenty-four such cases by laying open the bone and scraping away the marrow. His results were far better in those cases which he attacked early than in those on which he operated late. He alluded to the fact that the surgeon may inoculate himself with the pus, unless he is careful regarding cleanliness. This remark is interesting to the reviewer, as on one occasion both he and his house-surgeon were inoculated over the same operation. (*Lancet*, May 5, 1894.)

Although this is probably the most serious and acute disease to which the long bones of children are liable, and although it is of somewhat common occurrence, it is apparently but little understood—but rarely recognised. Yet the signs are characteristic enough. There are the intense constitutional disturbance, possibly with delirium, and a temperature of 103° or 104° F.; then, as regards the local signs, there are œdema and redness of the limb, and a painful central thickening, which can be associated only with bone and periosteum. This central thickening should suffice to distinguish osteomyelitis from erysipelas; whilst the fact of the swelling and redness not being at the joint should differentiate it from acute rheumatism. Erysipelas and rheumatism are, let it be remarked, the two diseases for which the diaphysitis is usually mistaken.

In the *Lancet* of Aug. 4, 1894, **Colcott Fox** described an interesting case of septic osteomyelitis in a child in which the

occurrence of erythema multiforme masked the original disease and obscured the diagnosis :—

On March 27 the girl, having been quite well till a week previously, was noticed to be slightly lame in the left leg, and she fainted once and vomited twice. The same evening the left knee was swollen. On the 28th an eruption designated “nettle-rash” appeared. On the 30th vomiting again occurred, and the patient could not obtain any sleep on account of pain. On April 1st the right ankle and the right elbow became painful and swollen, and the mischief in the left knee increased. The child came into hospital on April 2nd, when “the trunk and limbs were covered with large and small, and very numerous, rounded patches of an ‘urticarial’ eruption, slightly raised and flat, with a curved irregular margin. The colour of the margins was of a vivid purplish-red hue, which faded somewhat towards the centres. The eruption disappeared on the 6th, and the child died unconscious early on the 7th.”

The necropsy revealed extensive pyæmic lesions; doubtless the rash to which Fox calls attention was the result of septic intoxication.

In connection with the long bones in children, reference should also be made to a valuable course of lectures on “Injuries to the Epiphyses,” which was delivered last spring at the Royal College of Surgeons by J. Hutchinson, Jun.

#### **6. The surgical treatment of empyema.**

J. P. Wightman (*Lancet*, May 5, 1894), writes that empyema always has been, and always will be, a disease of very great interest and importance: of interest in that discussions on the treatment always give rise to differences of opinion; and of importance in that, so frequently, the presence of pus in the pleural cavity of cases brought to a children’s hospital is there found to have been overlooked.

Wightman has carefully worked up the notes of 145 cases from the Children’s Infirmary, Liverpool. He gives it as his opinion that the administration of chloroform is not contra-indicated, provided that it be carefully given. There is only one case recorded of death during operation where anæsthetisation could be said to have hastened the end, and this occurred where the child was almost moribund when the operation was begun. The use of chloroform allays the child’s fears, keeps it quiet, and allows of the major operation, resection of rib, to be at once proceeded with if necessary. Incision and drainage are in the majority of cases quite sufficient. Aspiration for empyema as routine practice in preliminary treatment should be condemned.



Drainage by long tubes and valves is in children very unsatisfactory. This form of treatment taxes the patience alike of patient, physician, and nurse; as regards the actual state of affairs one is entirely in the dark, and the most that can be done is to live in hope from day to day.

In the succeeding issue of the *Lancet* a letter appeared from the late Dr. Octavius Sturges pointing out that better results were obtained by resection of a rib. And in verification of the above statement certain tables of children who had been treated in the Great Ormond Street Hospital were prepared by F. E. Batten (*Lancet*, June 2, 1894). Forty-eight cases of empyema had been admitted during the period since it has been the custom to perform resection in nearly every case. Amongst Batten's conclusions are the following:—That aspiration is disappointing as a curative agent, but useful in some cases temporarily; that incision and drainage with antiseptic precautions may be trusted to cure all cases of curable empyema; that irrigation is unnecessary and dangerous; and that rib resection is needful in some neglected cases, but not in the generality.

For my own part, I make it a practice in every operation for empyema to resect a piece of rib. It does not increase the risk of the operation, and it insures free and effectual drainage. I agree with Wightman that in "the majority of cases" incision and drainage are quite sufficient. But what about the minority? There undoubtedly is a small proportion of cases in which resection is needed; and because one cannot tell at the time of operating which cases are likely to require it, I would urge that each case have the benefit of the resection. Everyone who has had much to do with empyema in children has met with those unhappy cases which have "hung fire" because drainage could not be effectually secured through the simple incision. And he has probably seen the case quickly clearing up after a second operation with resection. Why submit a child with empyema to the risk of having a second operation performed upon it? Resection is a simple matter; let it be resorted to in every case.

### **7. Acute intussusception in children.**

This disease has hitherto had an extremely bad record. Every practitioner at one time or another meets with instances of it, and whatever be the line of treatment adopted, most of the children die.

The disease is well understood, and it is generally recognised with promptitude. The symptoms, indeed, are characteristic. There is a severe attack of abdominal pain suddenly coming on in a child, who, a few minutes before, was well and hearty; there

is local tenderness, and perhaps a resistance may be found in the right inguinal region; there is tenesmus, and there is an escape of mucus or blood-stained slime from the anus. Why is the disease so fatal?

I think that it will be generally agreed that, anatomically, the slipping of a piece of bowel into a piece beyond is not in itself so serious a lesion as the acute strangulation of a piece of small intestine in the tight and unyielding neck of a congenital hernial sac; yet the child with the strangulated hernia recovers whilst that with the intussusception dies. Why is this? Suppose that the venue of the two lesions were changed: that intussusception should occur in the scrotum or inguinal region, and that the acute strangulation should take place inside the abdominal cavity, what would be the effect upon the relative mortality? My opinion is that intussusception would then show the better result; of course, this is but a wild speculation. Nevertheless, if there is any foundation for it, the inference is that intussusception has not hitherto received sufficiently prompt and effectual surgical treatment. If any physician should be sufficiently tolerant to read this expression of opinion, I trust that he will be still further indulgent, and forgive me when I say that I believe that the results of the treatment of intussusception would, at the present time, be far better if no subject of the lesion had ever been cured by massage, inflation, or injection. That such treatment has occasionally been effectual is beyond doubt, but how rarely it has been so! And frequently after these speculative measures have been fruitlessly carried out, the case is somewhat reluctantly handed over to the surgeon. Often the operating surgeon fails to reduce the intussusception because the opposing serous layers have already become firmly glued together.

It is quite certain that in such circumstances inflation or injection could avail nothing; and, on the other hand, it is equally certain that in those instances in which injection has succeeded the surgeon could have effected the unsheathing. Then, why this strong and deeply-rooted objection to an early abdominal section?

I believe that brighter days are in store for these terrible cases. Constantly now one is seeing or hearing of reports of successful operations for intussusception, and it is not unlikely that in due course the occurrence of the series of symptoms with which I began this criticism will be considered as constituting a clear indication for passing the fingers into the peritoneal cavity. Further, I look forward to the time when every case of "intestinal obstruction" will be regarded as surgical, and, in

hospital practice, sent, as a matter of course, into a surgical ward.

**J. D. Mortimer**, late surgical registrar at the Children's Hospital, alludes (*Brit. Med. Journ.*, Feb. 24, 1894), amongst other things, to the rapidity with which gangrene may occur in cases of intussusception; and whilst showing the best way of trying the method of treatment by injection, duly calls attention to the dangers of that method: "I would urge the importance of considering not only the duration of time that has elapsed since the onset, but also the severity of the symptoms. Within twenty-four hours gangrene has been known to occur, the conditions having, of course, been for some hours previously such as would have rendered an injection not merely useless, but highly dangerous. It may be remarked that in any one case opinions would probably still differ widely as to what should be considered 'a fair trial, not too much prolonged.' When surgical registrar at the Hospital for Sick Children I made some experiments in this direction, having been led to do so partly by the remarkable vagueness of the directions given in treatises and textbooks, partly by having seen cases in which, contrary to some preceding ones, injection had been followed by unfortunate results. An account of these appeared in the *Lancet*, May 23, 1891, and the conclusions may be briefly thus stated—that whilst injection offers a fascinating possibility of success achieved by simple means, it is liable to many serious objections, besides the obvious one of partial or complete rupture of bowel, and that under no circumstances should any method be employed which does not ensure steady, not intermittent, pressure, and estimation at any moment of the amount of force used. This can be done readily with tubing and an ordinary funnel, the latter not being raised more than three feet above the level of the abdomen. There is danger of rupture if this be exceeded."

### **8. Transformation and degeneration of nævi.**

**J. Reboul**, of Marseilles, has written an interesting memoir on this subject (*Arch. Gén. de Méd.*, 1893). He calls attention to the fact that though many congenital nævi disappear, some few of them contain embryonic tissue, which may at any moment wake up and grow with vigour, as well as with peril. He quotes the opinions of various surgeons and pathologists in confirmation of his views: of Lannelongue, for instance, who says that, as a matter of fact, a certain number of malignant tumours grow from a nucleus of embryonic tissue which may long have lain quiet and unsuspected in the tissues. It is Cohnheim's theory worked out to the end; and it is fully accepted by **Cristiani**, who writes



that "an embryonic germ is necessary for the formation of any neoplasm; but, the conditions not being favourable, no development takes place."

Boeckel has truly remarked that one can never say what will be the course taken by any particular nævus. How often have we seen a nævus which at first was recognisable only as a small pink speck, suddenly grow with energy. Occasionally, too, though rarely, I grant, we hear in connection with a rapidly growing malignant tumour that at, or soon after, birth it was noticed that the child had a "mark" at that very spot. And I am fully in accord with Reboul in his suggestion that even when no clear history is forthcoming the growth of later date may be springing from what might originally have been thought to be an embryonic nodule of no great pathological importance.

The moral to be drawn from this memoir is, I think, that though we should not make a needless fuss about a nævus, we should regard it with suspicion, and deal with it promptly and effectually. It is too much the custom to allow a nævus to guide the surgeon. Far better would it be, in the general run of cases, if the surgeon governed the nævus.

As regards the treatment of nævi, much depends upon the nature, size, and situation of the nævus. A superficial dilatation of veins and capillaries may disappear under the influence of collodion. But if it be too large for this, the chief vessels may be touched with a fine point of thermo-cautery. A nævus about the lids may be made to disappear most advantageously by electrolysis; and vascular tumours of larger size upon the face, trunk, or limbs, do best when dissected clean away. There is no risk from bleeding in these operations if only the incisions are made through healthy skin, and not through the nævoid tissue.

# DISEASES OF THE GENITO-URINARY SYSTEM.

BY REGINALD HARRISON, F.R.C.S.,

*Surgeon to St. Peter's Hospital.*

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## 1. Hydatids of the kidney.

William Gardner of Melbourne, communicates two important papers relative to the surgical treatment of this affection (*Australian Med. Journ.*, Aug., 1894, and *Intercol. Quart. Journ.*, Aug., 1894). Both are based on a considerable experience in a country where hydatid affections are common. The following case may be briefly narrated as illustrating what is spoken of as "the ideal method of treatment for living cysts of the kidney, and because it shows the saving of time in the after-treatment which is attained. A woman aged 35 years of age, where the diagnosis was cystic tumour of the left kidney. The usual lumbar incision for reaching the kidney was made, and the cyst exposed; then a hollow needle was passed in, which gave exit to clear fluid. The cyst was freely opened, and the sides grasped with forceps. By douching with lysol, aided by forceps, a large mother cyst was withdrawn. Then the interior of the external envelope was dried and closed with a continuous suture, and the superficial incision brought together in the usual manner. The wound was dressed for the first time on the eighth day, and found to be firmly united." Though the principle upon which this treatment is based is that described by Bond (*Brit. Med. Journ.*, 1891, "Year-Book," 1892, p. 207), it is the first illustration I have met with where it has been successfully applied to kidney hydatid, and is therefore deserving of a place here. It may be regarded as a typical example of the principle referred to.

## 2. Surgical kidney.

In reporting a case of unilateral surgical kidney, a somewhat exceptional occurrence, where nephrectomy was practised, followed by complete recovery of the man (*New York Med. Record*, Sept. 15, 1894), Weir concludes:—"I would consider it hereafter justifiable, if the patient's general condition would warrant it, in a case

of acute septic invasion of the kidneys, to make on one or both sides an exploratory incision, not only in the hope of relieving the acute interstitial invasion, but also, perhaps, of encountering a larger and well-defined focus of pus, which pathological condition cannot always, it is understood, be readily discriminated from the more dangerous lesion of the veritable surgical kidney. Should the symptoms point, as in the case narrated, to one kidney only, or should a double exploratory incision show the same result, a nephrectomy may with some hope now be resorted to."

In inflammatory affections involving the kidney, where progress is not in the direction of recovery so far as local symptoms are concerned, a lumbar exploratory incision is to be commended. It has frequently led to the discovery of a suppuration, either within or outside the capsule of the kidney; whilst in that condition of tension which must exist during the process attending the development of a surgical kidney, good may reasonably be expected from the adoption of a well-recognised principle. A timely incision in this case might possibly even have averted the necessity for a successful nephrectomy. The possibilities of this method of treatment seem capable of extension to other conditions of nephritis, where extreme tension of the organ is a feature in the case. It seems probable that the albuminuria which so frequently follows the nephritis observed in connection, for instance, with scarlet fever, is largely due, in the first instance, to the mechanical tension under which, during this complication, the urine is excreted. If we had the means of relieving this physical condition during the process of a nephritis, I do not think we should hear so much of albuminuria as a sequel of the eruptive fever. I have met with more than one example in my practice, where, for instance, after an exploration for calculus in the kidney, and where the capsule and cortex were either to some extent divided or punctured, an albuminuria of some standing disappeared, though no calculus was found. How much of this was due to the direct relieving of one kidney by the removal of tension, and to the restoration of the excretory balance thus effected, is a matter for speculation. It seems, however, not unlikely that in some of those cases of digital exploration of the kidney, where, though no stone was discovered, yet immediate and permanent relief to local symptoms followed, this explanation may be the correct one. There is good reason for concluding that the early stage of many instances of nephritis is one of intense renal engorgement, where *precise* depletion of the organ, and relief to exudation, might prove of much avail. Prolonged tension in a part of delicate structure and susceptibilities is probably more damaging than the inflammation itself. It is a



subject worthy of further elucidation in connection with renal disorders, where degenerative changes rapidly follow upon active, but not necessarily suppurative, inflammation.

Writing on the same subject, **Keyes** (*American Journ. Med. Sciences*, June, 1894), after discussing the ætiology of surgical kidney, draws the following deductions from a summary of the facts he presents :—“(1) To use reasonable care in exploring a healthy bladder, or passing any instrument into it; (2) to use greater care if there be traumatism from stone, tumour, or stricture, especially if the powers of the individual be weakened by age or disease; (3) to exercise every known precaution in exploring and manipulating instrumentally cases of dilated bladder in a fibrotic state, with enlarged ureters and damaged kidneys.”

There can be no doubt that every scientific surgeon will cordially recognise the value of these conclusions, and, in his practice, give effect to them. On the other hand, I do not know what would happen to us if the human bladder was as intolerant of bacterial influences as we are disposed to believe. Those of us who have much to do with out-patient practice in the hospitals of large cities must be in the habit of frequently seeing bronchitic old men anointing their catheters, with impunity apparently, with no other lubricant than what their mouth affords. We know the practice is both filthy and wrong, and we contend against it; on the other hand, very few of us are not occasionally disappointed by the invasion of the urinary apparatus with septic influences of a disastrous nature, after the best-conceived precautions have been taken. In spite of such apparent anomalies, we can, however, have no hesitation in endorsing the conclusion with which Keyes closes a paper of much practical value: “Asepsis, antiseptis, and sterilisation of urine are ends to be aimed at in genito-urinary surgery, but, like all other greatest goods, not yet attained in perfection. Much, however, can be done by local means, in a prophylactic and curative way, little by internal medication, and possibly as much or more than by any other means, by flushing the urinary passages with natural mineral water.”

### 3. Uretero-lithotomy.

**Cotterell** (*Royal Med.-Chir. Soc.*, May 8, 1894) records two cases of this operation, where stones were successfully removed from the ureters. Both instances were in females. In the first case it is stated :—“Ureter explored by incision similar to that described for tying the common iliac artery. Calculus found impacted just below the brim of the pelvis. The ureter was not sutured.” In the second :—“Exploration of bladder *per urethram*, detected two calculi lodged in lower end of right ureter, not

projecting into the bladder. They were removed by incising the ureter through the vault of the vagina."

In connection with these cases, which are of much interest, reference may here be made to the experimental investigations that have been recently conducted on the surgery of the ureters, by Van Hook (*Amer. Med. Assocn.*, June 8, 1893). This author concludes "that all operations upon the ureters above the crossing of the iliac arteries should be performed retroperitoneally, except in those cases in which the necessity for the ureteral operation arises during laparotomy," and that "the intrapelvic portion may be reached by incision through the ventral wall, the bladder, the rectum, the vagina in the female, the perineum in the male, or by Kraske's sacral method." In laparotomy wounds of the ureter, sutures may be used, except in complete transverse division, when the author's method of "lateral implantation," as described, is now commended. The latter consists in tying the separated lower end of the ureter, then making a slit into it below the ligature, and invaginating the upper end into the lower through this slit. He also observes that implantation of the cut ends of a ureter into an isolated knuckle of bowel is objectionable, because the gut is not aseptic, and the operation too dangerous. The communication of Van Hook, though of much practical value in connection with the surgery of the urinary apparatus, hardly permits of much condensation. As the tearing of a ureter is almost invariably followed by a stricture and an atrophied or a distended kidney with absorption, the importance of this subject can hardly be overestimated.

#### **4. Modifications of Bigelow's litholapaxy designed to meet cases in which the prostate is enlarged.**

Chismore (*Journal Cutan. and Gen.-Urin. Diseases*, New York, Aug., 1894), after referring to the unfavourable conditions for performing lithotrity where the prostate is enlarged and the bladder pouched or sacculated, thus epitomises his method of procedure: "1st. Substituting local for general anæsthesia (with a 4 per cent. solution of cocaine) in cases where an anæsthetic is required. 2nd. Short sittings. Continue crushing only so long as fragments can easily be found. Wash out the pieces, and stop the moment symptoms of exhaustion, spasm of the bladder, or unusual distress occur. 3rd. Remove remaining pieces, after symptoms due to previous operation have subsided, as soon as they can be felt by the searcher—usually within a week—and repeat the process until the bladder is cleared. Briefly summarised, of my fifty-two cases the youngest was 51, the oldest 74. average 66.36 years. There were 22 phosphates, 24 oxalates,

5 urates, and 1 mixed oxalate and urate. The smallest weighed, dry, 7, and the largest 1,000 grains; average weight 149 grains. There were no deaths and no serious complications attributable to these operations."

There is much to be said in favour of this procedure, as the untoward conditions for crushing and the almost certainty of recurrence are at once recognised. It is in this class of cases that surgeons get the discredit of having performed an imperfect and useless operation, an impression which is in no way removed by subsequent repetitions. The difficulties of the position and the liability to relapse should be appreciated at the outset, and not left to develop as time proceeds. To take a stone out of a bladder is one thing, and to remove the conditions which led to its formation is another. The latter may be absolutely irremediable by any form of operation with which we are now acquainted, and it would be therefore useless, unless clearly necessary from the size or structure of the stone, to expose a patient to the increased risk that any cutting operation may entail. Hence there is a field open for Chismore's practice subject to both patient and surgeon mutually understanding each other.

It must not be forgotten that in some cases of prostatic hypertrophy the prostatic flap or growth is forcibly pressed back against the posterior wall and most dependent portion of the bladder by the rigid instruments employed in lithotrity, both in crushing and evacuating the stone—much in the same way, in fact, that a door may be opened and firmly held back against the adjoining wall by the hand. To liberate a person who may thus be confined, it is clearly necessary either to reclose the door or take it off its hinges. This position can easily be demonstrated in the case of the bladder, on suitable occasions by the finger introduced into the rectum, or during a suprapubic cystotomy by passing a metal bougie along the urethra. As there are many elderly persons who suffer from stone in conjunction with an enlarged prostate, where a prostatectomy or cutting operation is entirely out of the question, the method of Chismore may be adopted as allowing opportunity for inaccessible fragments to move out subsequently into positions within the bladder where, if they give cause for offence, they may be safely and readily dealt with. In this way by steady perseverance on the part of the patient as well as the surgeon the former may be completely cured of his stone, as evidence might be readily afforded. This is entirely a different class of cases from those where a fairly healthy and well-shaped bladder happens to contain a stone, and requires, as statistics relative to recurrence show, exceptional treatment. It



is important to recognise that a calculus in the bladder is frequently something more than a stone in a box.

### **5. Suprapubic cystoscopy.**

**Hurry Fenwick** (*Brit. Med. Journ.*, April 21, 1894) describes a mode of examining the bladder by means of the electric light by the introduction of the speculum through a small incision above the pubes. The method may be applicable to cases where it is desirable to explore the post-prostatic pouch and contiguous parts, and where the size or condition of the prostate proves an obstacle to doing this in the ordinary way, either with the sound or the cystoscope. In the case of a stone or a growth being discovered, a suprapubic cystotomy might then be proceeded with.

### **6. Suprapubic lithotomy in a case of broken lithotrite.**

**W. T. Hayward** records an accident of this unusual kind occurring with an instrument of the best construction (*Australasian Med. Gaz.*, Sept., 1894). "The beak of the male blade snapped when I was in the act of crushing. I removed the stone and the beak next day, doing a suprapubic lithotomy." It was a non-fenestrated instrument.

In using lithotrites, though there is less risk of a fenestrated instrument breaking, when the stone is large and hard, it is a good plan to screw up until the resistance afforded by the calculus is felt to be considerable. If the operator will then wait for a moment or so, he will often find the stone yield without further force; in this way we may avoid putting on the maximum amount of strain on the instrument. The resistance of stones relative to the construction of lithotrites based on the "measured crushing resistance of 184 vesical calculi" forms the basis of a paper of much practical value by **W. S. Forbes** (*Philadelphia Med. News*, June 23, 1894). Considering the number of faulty lithotrites which are now made for sale, but not for use, surgeons cannot be too careful in making their selection. A broken or bent lithotrite is an accident which should be avoided by every available means.

### **7. Radical treatment of hernia of the bladder.**

**Ernest Michels** (*Proc. Royal Med.-Chir. Soc.*, April 24, 1894) records what might be regarded as a surgical accident, but which really is a valuable contribution to this subject. "A man, aged 48 years, was admitted into the German Hospital suffering from inguinal hernia on both sides, for which the radical cure was performed. On the right side the operation was complicated owing to the matting together of different layers. At last, what appeared to be the empty sac was reached, isolated with some

difficulty, tied at its neck and cut away ; the stump was put back into the abdomen and the inguinal ring closed. Twenty-four hours after the operation the patient began to complain of pain, and the urine contained blood. It was evident now that what had been taken for and treated as an empty hernial sac, was in reality an extraperitoneal diverticulum of the bladder. The abdomen was opened at once, the bladder fully exposed, and the wound was closed by a double row of sutures. A rubber catheter was retained in the bladder for six days, recovery being complete."

F. A. Purcell (*Lancet*, May 5, 1894) records a somewhat similar case in connection with a strangulated hernia. The cystocele was sliced off, and the wound in the bladder closed with sutures. The man recovered.

As Mr. J. G. Crosse (*Urinary Calculi*, 1835) observed that persons suffering from cystocele in whatever form are very liable to calculus, of which he furnished several illustrations, this practice may be designedly followed in some of these cases with advantage.

### **8. The treatment of enlargement of the prostate by castration.**

Mansell Moullin (*Brit. Med. Journ.*, Nov. 3, 1894) adds another case to those already recorded by Ramm, Haynes, White, Powell, and others, where benefit followed this proceeding. Though it is an operation not likely to be very available in practice, there are instances where it may be utilised provided a more extended experience of it warrants all that has been written. Amongst other measures which have recently been adopted in connection with prostatic hypertrophy is one where Meyer, of New York (*Annals of Surgery*, July, 1894), ligatured simultaneously both internal iliac arteries (Bier's method). It is noted "the prostate became smaller and the length of the urethra was reduced from  $23\frac{1}{2}$  to  $22\frac{1}{2}$  centimetres in six months." In the conditions which culminate in the selection of operative measures of a radical nature there is little doubt that in many instances the trouble actually commences with a badly-fitting non-aseptic catheter. Prostatic œdema and cystitis are thus readily set up, and the difficulties connected with artificial micturition are largely added to. The practitioner will do well invariably to see that his patient is provided with a properly selected instrument, that he knows how to use it and sufficiently appreciates the importance of surgical cleanliness. To merely refer the patient to the instrument-maker is a mistake. Though exception has been taken by some to my views as to the muscular action of the prostate in connection with its relations to the sexual and urinary

acts, a conclusion which is in no way disturbed by the operative proposals just referred to, it must not be forgotten that its hypertrophy is almost entirely due, not to its glandular element, but to its muscular and fibrous additions. In a recent lecture MacCormac clearly puts it (*Clinical Journal*, June, 1894) from a pathological point of view: "The glandular element is comparatively little augmented in these affections. It is generally compressed and diminished in quantity rather than increased. The great development occurs in other structures, the muscular notably and the fibrous." Teale has also illustrated (*Lancet*, Oct. 27, 1894) in a forcible manner how much physiological rest and the introduction of some amount of scar tissue, as, for instance, after prostatic paracentesis and the retention of a canula, exercise their influence in bringing about a perfect restoration in the function and size of the part. Suprapubic prostatectomy and castration are expedients which can only be adopted in advanced cases of hypertrophied prostate after very careful consideration. Mr. Mayo Robson reports a series of twelve suprapubic prostatectomies (*Brit. Med. Journal*, April 28, 1894), and thus concludes: "I consider that the operation of suprapubic prostatectomy in properly selected cases is one attended with less danger than is usually thought, and that if thoroughly and completely performed it is capable of affording such relief as may be in many instances genuinely termed a cure, and that in a class of cases which until a few years ago were looked on as incurable." In removing the obstruction he states: "I have found McGill's scissors or the cutting-ring forceps invented by my colleague, Mr. Jessop, to answer best for the sessile or pedunculated enlargement of the middle lobe, and for the ring-like obstruction I have used the scissors, first at one side and then at the other, so as to cut out a V-shaped portion, making a clear channel from the vesical pouch straight into the urethra, down which the finger is passed to see that the passage is clear."

### **9. Extreme prolapse of the urethra in a female child.**

Bryant (*Royal Med.-Chir. Soc.*, May 8, 1894) records an instance of this kind where the patient had previously suffered from bladder irritation for some years. "On making a local examination, the genital organs were bathed with blood-stained mucus, and between the labia was a cherry-red, blood-oozing, projecting mass about three-quarters of an inch in diameter, and of the same elevation, with a more or less central orifice surrounded by folds of congested mucous membrane, through



which a catheter was readily passed into the bladder. It thus became clear that this protruding mass was an inverted urethra. Under the influence of chloroform the urethra was dilated and the bladder explored by the finger, but with a negative result, and during this operation the prolapsed urethra was reduced. The case subsequently did well."

These cases are extremely rare, and have been, at first sight, mistaken for a tumour of the bladder, by reason of the fungating appearance they present.

#### **10. Operation for incontinence of urine in the female after a stone operation.**

Way (*Australasian Med. Gaz.*, Sept., 1894) illustrates a method, first described by Gersuny (*Centralblatt für Chir.*, No. 25, 1889), by torsion. The incontinence was complete and had existed for nine years, and was doubtless caused in the first instance by over-dilatation of the urethra. The proceeding is thus described:—

"I dissected out the urethra down to its junction with the bladder. The margins of the external orifice were secured by four pairs of catch forceps, and a complete turn was made in the urethral cylinder so as to make it revolve in an arc of 360 degrees. The margins were then sutured by silk to the margin of the outer wound, the urethral orifice being secured as far as possible in the identical position it occupied previous to the dissection. It was at once apparent that the closure of the canal was perfect; in fact, it seemed possibly too complete, for the finger could no longer gain an entrance, nor could I even pass in a catheter, which I intended to secure in the bladder for a few hours, and, after several fruitless efforts, and the production of a false passage along the outer wall of the urethra, I elected to wait to see if the natural powers would overcome the barrier I had created."

Though the case did not at first promise to do well, owing to the interference with the wound on the day following operation, in consequence of not having tied in a catheter as a provision against retention, three months afterwards, it is stated, "she again reported herself as quite well. She has now perfect control over her bladder during the day, and she says she can now go about in comfort, but during her sleep the urine escapes at times, not continuously as before. The eczematous excoriation has almost disappeared; uriniferous smell absent."

This operation seems worthy of trial in all those cases of permanent incontinence following interference with the female urethra. Since the introduction of the suprapubic method of

opening the bladder and litholapaxy, the number of these cases has considerably diminished.

### **11. Treatment of hydrocele by puncture drainage.**

Neumann (*Arch. de Méd. Belge*, Dec., 1893, and *Brit. Med. Journ.*, March 3, 1894) records six successful cases. The hydrocele is punctured with a trocar, the needle is withdrawn, and the canula retained for two days by means of a compress. It is claimed that this treatment is less complicated and painful, and more certain than those commonly employed.

In the "Year-Book of Treatment" for 1894 incision and drainage of the sac were stated to have proved extremely useful in some instances where it was desirable to ascertain the condition of the testis, and where iodine injection appeared to be inadmissible. The latter, no doubt, is very painful. The late Mr. Syme, who much favoured tapping and injecting with iodine, was accustomed to refer to the demonstrations of the patient as the Edinburgh tincture was introduced and well shaken up in the sac, as indications of "astonishment" and not of pain. There can be no doubt that in his hands the latter mode of treatment, whatever else it might be, was singularly successful.

### **12. The treatment of certain forms of purulent and offensive urine.**

Reginald Harrison (*Semaine Médicale*, March 23, 1894) refers to some extremely offensive forms of urine dependent upon a pouched or sacculated bladder, where the ordinary methods of irrigation are found useless. He mentions a case in particular where the pouch was in immediate contact with the rectum. A suprapubic cystotomy was performed for the purpose of exploring the bladder and sluicing it out by way of the urethra through the wound with a pint or so of warm boracic lotion daily. This treatment was continued for a month with success, the offensive smell disappearing on the healing of the wound, and the patient being able to dispense with the catheter, which he had been in the habit of regularly employing previous to this operation.

The case presented several points of interest worthy of notice. It demonstrated that an offensive state of the urine, which was actually poisoning the patient, was due to a retention of a portion of the excretion. The peculiar nature of the odour and the relation of the bottom of the pouch with the rectum appeared significant. It showed that in certain mechanical conditions of the bladder the ordinary methods of washing out or irrigating the organ could only be partially effectual. It illustrated that efficient drainage of the bladder is probably the only method

with which we are acquainted of permanently improving the shape of a distorted viscus. This is brought about by allowing pouches and depressions to contract and shrink, which otherwise, by the weight and pressure of residual urine, would tend to increase in a direction towards and alongside the rectum. It showed the advantage in some instances of a direct through irrigation as compared with the circumlocutory process which is entailed when only one point for access and exit is available. A diseased bladder, and a foul suppurating sinuous sac, though situated elsewhere, often have much in common.



# DISEASES OF THE ANUS AND RECTUM.

BY ALFRED COOPER, F.R.C.S.,

*Senior Surgeon to St. Mark's Hospital.*

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## **I. Contribution to the surgery of the rectum.**

A paper bearing the above title was read by A. G. Gerster, of New York, before the American Surgical Association (*Annals of Surgery*, August, 1893). It contained an account of the author's personal work in the Mount Sinai Hospital during four years. The total number of patients suffering from rectal ailments was 557. Of these, 280 were classified under hæmorrhoids, 167 under fistula, 17 under carcinoma, and 11 under prolapse; cases of cicatricial stricture, chronic ulcer, polypus, multiple adenoma, congenital atresia, and anal fissure, with others apparently not classified, made up the remainder.

For hæmorrhoids, Gerster prefers the "clamp and cautery" in the absence of any special indication for other methods: 156 patients were thus treated. Early action of the bowels (*i.e.*, on the third or fourth day after the operation) is regarded as very desirable. The method by "ligature" (in sixty-three cases) is described as not very pleasant to the patient, but very safe and very convenient in the hands of the general practitioner. Whitehead's or Lange's operation (described as perfectly rational and well-conceived) was generally reserved for the more aggravated cases, characterised by prolapse of the mucous membrane.

In cases of fistula requiring extensive incisions, and especially when the topographical relations of the wound are simple, Gerster recommends careful excision of the pyogenic membrane of the fistula, and immediate suture of the wound in tiers. The healing process is thereby much accelerated.

The cases of carcinoma presented several features of interest. Kraske's operation was performed three times, with one death, and once perineal extirpation was successfully resorted to. Gerster lays down the following rules with regard to extirpation of the rectum:—

(1) Only such cases should be selected for operation as still possess a good circulation, though showing other signs of illness. Preliminary colotomy is especially indicated where much faecal distress and more or less fever are due to stricture and ulceration. Scrupulous attention should be paid to the patient's preparatory feeding and general *régime*.

(2) Every expedient should be adopted tending to diminish loss of blood during the operation.

(3) The most painstaking asepsis is an essential condition of success.

## 2. A bloodless operation for hæmorrhoids.

T. H. Manley, of New York (*Boston Med. and Surg. Journ.*, Feb. 1, 1894), states that he found venous varices of the rectum in more than half the total number of the cases (both living and dead) which he examined. He considers that hæmorrhoidal dilatation is a physiologically degenerate condition, causing no inconvenience in old age, as in many of the cases he examined, but in middle life often associated with or attended by such complications as to render it a distinct pathological lesion. He emphasises the fact that operations of various kinds sometimes fail to cure hæmorrhoids. The varicose state of the upper rectal vessels remains, and renewed irritation causes the piles to reappear. He recommends the following plan, which he has found successful in thirty-two cases. On the previous evening a purgative is administered, and on the morning of the operation the parts are thoroughly cleansed and rendered aseptic. A solution of cocaine is injected subcutaneously, so as to produce local anæsthesia. The sphincter is then gradually and steadily, but thoroughly, dilated, and the hæmorrhoids, first carefully dried, are freely mopped with the cocaine solution; each hæmorrhoid is seized separately, close to its base, firmly between the tips of the thumb, index and middle fingers, drawn out, then twisted, and finally so completely crushed that it is reduced to a pulp. Of the investing tunics all that remains is the mucous membrane, with its subjacent fibrous layer. After completing the manipulations, the entire mass is replaced within the sphincter, an opium suppository is introduced, and a pad and bandage applied. Little if any pain is subsequently felt, and the tumours become atrophied and absorbed in the course of two or three weeks. The author claims the following advantages for the operation: (1) simplicity and ease of performance; (2) absence of bad consequences, such as abscess and ulceration; (3) no risk of hæmorrhage, either immediate or secondary.

### 3. Imperforate anus with recto-vaginal fistula in a patient nineteen years of age.

H. Thompson, of Hull, records a case (*Lancet*, 1894, Vol. I., p. 403) in which the age of the patient and the satisfactory result of the treatment constitute the main points of interest. For nineteen years the girl had had incontinence of fæces, only the overflow dribbling away, and nature relieving herself by occasional attacks of purging and stercoraceous vomiting. From the history it appeared that when the girl was five or six weeks old, a surgeon had "tried to make a proper opening," but had failed to do so. On examination no trace of an anus could be seen. Its site presented the mark of a cicatrix. Just within the vagina there was a round aperture, through which the tip of the forefinger could be passed into the rectum, which was felt to be loaded with a huge accumulation of fæces. Two hours were occupied in clearing out the bowel. The operation consisted in a combination of Whitehead's operation for severe hæmorrhoids with Lawson Tait's splitting method for cases of ruptured perineum. A vertical incision was made from the apex of the perineum to the tip of the coccyx, and the rectum was then freed for some distance from its attachments. Anteriorly, each side of the vaginal fistula was split, and the posterior wall dissected up for some distance; the edges of the freed rectum were next attached to the edges of the skin, but the stitches were left loose until after the next step. Sutures were next applied to the vaginal fistula and tied; and the operation was completed by tying the anal stitches and inserting many superficial sutures in the perineum. The after-course was tedious but satisfactory. Massage and regular doses of castor-oil were employed to relieve the bowels, and about nine weeks after the operation the patient was discharged with a completely satisfactory condition of the parts, and with perfect control over the fæces. Regular doses of aperients were still necessary, though it seemed probable that muscular power would in time be developed.

A case of imperforate anus in a girl eight years of age, successfully treated by Newman, of Stamford, is reported at page 741 of the same volume of the *Lancet*.

### 4. Tuberculous ulceration of the anus.

Hartmann, of Paris, states (*Rev. de Chir.*, Jan., 1894) that tuberculous ulceration of the anus is much less common than tuberculous abscess and fistula. He has treated ten cases and alludes to nineteen others, either previously published or communicated to him. Of the total there were twenty-two men, six women, and one child. The disease commences insidiously:



slight pain during defæcation is generally the first symptom; diarrhœa is somewhat frequent. In the majority of cases the ulceration extended to the margin of the rectum; only in two instances was it entirely cutaneous. The pain varies in degree, and is rarely severe. In ten cases only slight pain was complained of during defæcation. There was never any incontinence of fæces. The ulceration slowly progresses; in nearly half the number of cases one or more inguinal glands were enlarged. Hartmann recommends free scraping and destruction of the ulcer with the cautery (thermo- or galvanic) or with the knife, and the subsequent application of iodoform. When the condition of the patient does not justify the use of the cautery, general treatment must be adopted. In addition, pain may be relieved by opium suppositories, the application of chloral (1 per cent.), or of a mixture of subnitrate of bismuth and iodoform; but these remedies have no effect in modifying the ulceration. In one case, recorded by Esmarch, success was attained by applying a strong solution of nitrate of silver (1 to 8) regularly for sixteen months.

##### **5. The position of the patient during excision of tumours of the rectum.**

Godlee records a case (*British Medical Journal*, July 8, 1893, p. 64) in which he removed a rectal tumour, about  $1\frac{1}{2}$  inch by 1 inch or rather larger, situated so high up in the bowel that it was impossible, without enlarging the anus, to estimate exactly its size or position. The patient, instead of being placed in the lithotomy position, was turned on his face, close to the side of the table; the right thigh was extended but the left hip was flexed, the thigh hanging over the side of the table, and the knee resting on a chair. The operation consisted in making a mesial incision as far as the level of the third foramen of the sacrum, removing the coccyx, and separating the attachment of the sacro-sciatic ligament as far as the third foramen on the left side. The rectum was then slit up from behind, and the growth pulled down and removed with scissors. Stitches were easily applied to an opening which had been made in the peritoneum. All the steps of the operation were accomplished with much greater facility than when the lithotomy position is adopted. Commenting on Godlee's note, **F. C. Larkin**, of Liverpool, states (*ibid.* p. 152) that he has for several years used the prone position in similar operations. As a matter of course, in all operations the position of the patient should be such as will best enable the surgeon to carry out the plan he has resolved to adopt. During the various steps of many rectal operations it is often necessary to alter the position of the patient.

## 6. The prevention of prolapse of the intestine after inguinal colotomy.

Prolapse of the intestine is seldom more than slight, if the incision through the superficial parts does not exceed two inches in length, and it can be completely supported by a well-fitting truss. Mansell Moullin recommends a device (*British Medical Journal*, July 8, 1893, p. 65) whereby the tendency to prolapse is checked. The opening from the surface is made valvular; the muscles are placed in a position to acquire a certain constricting power over it, and the last inch or so of intestine is made to lie at an angle with the part above. This condition of the parts is obtained in the following manner:—The usual incision is made, the aponeurosis of the external oblique is slit up, and the fibres of the subjacent muscles are separated with the handle of a scalpel. When the loop of intestine which has been selected is drawn out, the aponeurosis on the inner side of the wound is lifted up for about an inch from the internal oblique, and an incision made in the direction of its fibres that distance nearer the middle line. The intestine is then slipped under the isolated strip, brought out through the second opening (the first being closed with a suture), and fastened by transfixion of the mesentery in Maydl's and Reclus's fashion, or in any other way the operator may prefer.

With reference to this suggestion, A. E. Barker states (*ibid.* p. 154) that the best way to prevent prolapse is to aim at making the opening in the abdominal wall as small as possible. The incision should be about 2 inches long, and the fibres of the external oblique should be torn apart rather than cut for about  $1\frac{1}{2}$  inch. After the bleeding has ceased the peritoneum is incised, and the bowel is drawn out until its mesenteric border is well beyond the skin. It is secured to the latter by from six to twelve silk sutures, so that it shall not slip back, and the skin-wound is sutured so as to embrace it closely. After a few days, the loop of gut is cut away flush with the skin, and it is then seen that both arms of the tube coming through a small muscular opening are quite parallel and cannot communicate, and tightly embraced by muscular fibres which have been separated rather than cut. Barker also adopts Greig Smith's suggestion not to draw the parietal peritoneum out over the edges of the opening in the muscles, but to let the serous coats of the bowel come directly into contact with the muscle and skin. Jordan Lloyd, of Birmingham (*ibid.* p. 281), admits that the above-described plans have undoubtedly a real value, though they do not always prevent prolapse.

### **7. New method of preventing faecal incontinence after resection of the rectum.**

When the sphincter ani has been removed with the lower part of the rectum, faecal incontinence is not unlikely to result. To prevent this misfortune, Gersuny, of Vienna (*Centralbl. für Chir.*, July 1, 1893), recommends the following plan. After extirpating the diseased portion, the cut margin of the rectum is seized at opposite points with two hooked forceps. The bowel is then twisted around its long axis until its lumen is so far diminished that attempts to pass the finger within it meet with much resistance. The lower end of the twisted bowel is finally stitched to the cutaneous margin of the wound. This method was attended with satisfactory results in two cases. On digital examination some time after the operation, the rectum in both cases was found to be closed near the lower end by an elastic angular constriction. Gersuny points out that the results of torsion of divided intestine depend on the elasticity of normal tissue, and are therefore more likely to be persistent than those which are due to occlusion by cicatricial tissue. In his first case, the torsion was carried to  $180^{\circ}$ ; in the second, to  $270^{\circ}$ .

### **8. Torsion for the cure of rectal incontinence.**

Gersuny's method has been adopted by A. G. Gerster, who read a paper on the subject before the New York Surgical Society (*Annals of Surgery*, May, 1894). After mentioning various causes of rectal incontinence, the author alluded to cases in which the sphincter had been rendered useless by one or more incisions, carried through its entire thickness, usually for the cure of fistula. When other methods fail, torsion will be found a most valuable aid in re-establishing continence. The same method offers a fair promise of success when the function of the sphincter has been impaired by ulcerative processes and cicatricial formation, resulting in stricture. The cicatrix must first be excised. Congenital absence of the sphincter may also be relieved by torsion.

Many cases of incontinence are produced by operations, wherein the sphincter must be sacrificed in eradicating neoplasms. Here, according to Gerster, torsion is eminently indicated as the concluding step of the operation. The amount of torsion is regulated by the degree of resistance encountered; it might be necessary to make more than one complete twist, as, for example, when 5 or 6 inches of the rectum had been excised, and the loosened end drawn down. Torsion may be made either immediately after extirpation, or after the rectum has become fixed by granulations to the adjoining soft parts. In the latter case,



the lower 2 or 3 inches are loosened and twisted to the required degree.

### **9. New instruments for the treatment of rectal diseases.**

#### *Clamp for removal of piles.*

At a meeting of the Staffordshire Branch of the British Medical Association, **W. H. Folker**, of Hanley (*British Medical Journal*, January 6, 1894), exhibited an instrument which had been used by himself and some of his colleagues for two years, and had been found to act most satisfactorily. The following advantages were claimed for the clamp: (1) Absence of pain; (2) absence of hæmorrhage; (3) perfect recovery within a week; (4) impossibility of subsequent contraction or inconvenience. Folker recommends that the cut surface of the pile should be sponged dry and pencilled over with styptic colloid before the sutures are applied.

#### *Improved pile clamp.*

**Ward Cousins** has devised another form of clamp (*Lancet*, 1894, vol. i., p. 1257), which is a modification of the instrument used by the late **H. Smith**. The ivory plates are very broad, and near the extremity of the clamp a short lever is attached for the purpose of holding the blades accurately in position, and also for preventing the strangulated mass from slipping out of their grasp. The instrument is provided with a quick-travelling screw, which much facilitates the opening and shutting movements.

#### *New ointment-introducer for rectum and sigmoid flexure.*

**Lauder Brunton** has devised (*Quarterly Med. Journal*, Jan., 1894) an instrument for the purpose of applying ointments to the upper part of the rectum and sigmoid flexure. It is simply a modification of Allingham's instrument, and is considerably larger. To the extremity is attached a long red rubber tube, which may be passed, if desired, from 8 to 16 inches into the bowel. By turning the screw with which the instrument is furnished, and at same time withdrawing the tube, the ointment can be applied to the bowel for a considerable distance.

#### *Rectal ointment introducer.*

Another modification of Allingham's instrument has been suggested by **E. C. Ryall** (*British Medical Journal*, May 5, 1894). The instrument consists of a receptacle, with perforated pipe, and a cap. When the receptacle is filled with ointment, the cap is replaced and the pipe introduced into the rectum. On pressing home the cap, the ointment exudes through the perforations.

# VENEREAL DISEASES.

By J. ERNEST LANE, F.R.C.S.,

*Surgeon to Out-Patients, and Lecturer on Anatomy, St. Mary's Hospital ;  
Surgeon to the London Lock Hospital.*

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## 1. The treatment of syphilis.

At the Société Française de Dermatologie et de Syphiligraphie (*Annales de Derm. et de Syph.*, Aug.--Sept., 1894) papers were read on the advantages, or otherwise, of intramuscular injections of mercury in syphilis.

Victor Augagneur considered that the injection treatment was indicated only in certain exceptional cases, for the majority did perfectly well when treated with mercury by the mouth, and consequently it was unnecessary to have recourse to these heroic methods. The numerous and grave accidents to which the intramuscular injection treatment renders the patient liable, are sufficient reasons for not having habitual recourse to it. Of these accidents, some are immediate, some remote ; some insignificant, others fatal. Kowalewski has observed that the pain produced by the injections has caused a faintness amounting almost to syncope, and that the pain is frequently of long duration. Further, the liquid mass deposited in the tissues forms an inflammatory lump, extremely sensitive, and influenced by movements or shocks. He was always struck by the extreme slowness with which injections made up with vaseline or lanoline were absorbed ; and the seat of injection remained the focus of pain for weeks or even months. Moreover, the nervous symptoms were not limited to pain, for Lewin has recorded a case of paralysis of the external popliteal nerve, the great sciatic having probably been affected, owing to its proximity to the injection. Abscesses were of frequent occurrence, and of long duration. These are obstacles to the treatment, but the following amounts to a danger. Blaschko has noticed that, after the use of injections of salicylate of mercury suspended in liquid paraffin, the patients were seized with violent coughing, dyspnœa, cyanosis, and other signs of embarrassed respiration—symptoms which were undoubtedly caused by emboli of paraffin in the pulmonary

circulation (*see* "Year-Book of Treatment," 1894, p. 300). This occurrence should make anyone who knows the dangers of fat emboli after fractures reflect. The great danger of injections is mercurialism, with its train of consequences. This is by no means a rare occurrence; and Augagneur mentioned seventeen deaths of which he was cognisant from this cause. He had also published the history of a case of chronic mercurial poisoning set up by one single injection, in which he was compelled to dissect out and remove all the cellular tissue of the buttock, to relieve the constantly-recurring symptoms. To sum up: The patient always suffers, and sometimes dies, from the effects of mercurial injections. Granted that the immense majority of syphilitics can be treated successfully by the ordinary method of administration of the remedy, viz., by the mouth, especial indications must be present before the injection is admissible, and it should never be adopted as a routine practice. Augagneur then proceeded to discuss what were the indications for the hypodermic method, and concluded that it was justifiable only when inunctions had failed, or in cases of cerebral syphilis where symptoms of the greatest urgency were present.

**Stoukovenkoff**, of Kieff, expressed the opinion that the rapidity of the action of mercury depended not so much on the amount of the drug introduced into the system, as upon the quantity absorbed by the blood, or, what was practically the same thing, eliminated by the urine. He considered that the ideal treatment would be by intravenous injections, which he should certainly make trial of were he convinced that it would be unattended with danger. The preparation he advocated was an aqueous solution of benzoate of mercury.

**G. Thibierge** advocated the employment of injections of the insoluble preparation, known as "grey oil," the composition of which is mentioned in the "Year-Book of Treatment" for 1894, p. 302. He laid great stress on the absolute necessity of strict antiseptic precautions, which should include the syringe employed, the hands of the surgeon, and the skin of the patient. He observed that the pain of the injections was hardly ever sufficient to cause confinement to bed, nor were the patients ever incapacitated for more than one day. He had found salivation and stomatitis to be moderate after the use of injections. The treatment, however, was applicable only to a limited class of cases.

**Louis Jullien**, in alluding to the objections which had been urged against the injection treatment, alluded to abscess, accumulation and mercurial toxæmia. Abscess was quite exceptional.



The possibility of a cumulative action should be borne in mind ; and, though it might lead the surgeon to modify the dose, should not condemn the method. Mercurial poisoning was the result of mistake or grave negligence.

[This is the most recent, and probably the most important, discussion on this (to syphilographers) most momentous question, and the closely-reasoned and impartial paper of Augagneur is a very valuable contribution to the literature of the subject. He does not take up the uncompromising attitude which has been assumed by the ardent partisans and the equally vehement opponents of this mode of treatment ; but having given both methods a prolonged and impartial trial, he concedes the utility of the mercurial injections in certain cases, such as cerebral syphilis, and in those patients who have proved themselves unamenable to the next most potent plan of treatment, viz., energetic inunctions.]

## 2. Intravenous injections of mercurial solutions in syphilis.

At the Dermatological Society of Berlin, Lewin showed several patients who had been treated by intravenous injections of corrosive sublimate solutions, after the method suggested by Baccelli, and alluded to above by Stoukovenkoff (*Annales de Derm. et de Syph.*, Aug.--Sept., 1894). The principal objections were, that it was difficult to find a suitable vein, and that the canula was so easily forced through the vein selected into the neighbouring tissues. The best method is, having inserted the needle, to see that the blood flows from the canula, and only to make the injection after being convinced of this fact. Further, the danger of thrombosis must be borne in mind, though Lewin had never observed such an accident. The effect of corrosive sublimate was far more pronounced after intravenous than after intramuscular injections, and no ill effect had been observed, either on the kidneys or the intestines. In a case of rupia of two months' duration, a cure was effected after six injections, while in another case in which it was tried for gummata on the end of the nose, a single injection caused them to disappear. The method was not one to be employed in out-patient departments, and it was more easily practised in men than in women, on account of the veins being more prominent in the male sex. The dose used was gramme .001 to gramme .006, or from about  $\frac{1}{65}$  to  $\frac{1}{10}$  of a grain.

## 3. The treatment of syphilis by thyroid extract.

J. D. Menzies (*Brit. Med. Journ.*, July 7, 1894) describes four cases of malignant syphilis treated with thyroid extract. The

patients were all soldiers, and were invalided home from India, as being unfit for service in a tropical climate. All the cases described were of a very severe type, and well exemplified the course of the disease, as it usually affects Europeans when stationed in hot climates. The thyroid extract was given in the form of 5-grain tabloids, the quantity administered varying from one to four tabloids *per diem*. Mercurial and alterative treatment was suspended for the time, in order more effectually to gauge the utility of the method. In every case a distinct improvement was noticed, and Menzies regards the remedy as a powerful skin tonic and adjuvant to the mercurial and alterative treatment of syphilis.

John Gordon (*ibid.*, Jan. 27, 1894) records a case of syphilitic psoriasis treated by the same method. The patient was a woman, aged forty-nine, who was suffering from a desquamating papular syphilide of the scalp, face, trunk, and extremities, the palms of the hands and soles of the feet being also slightly implicated. Treatment by arsenic and iodide of potassium internally, and by chrysophanic acid ointment locally, having produced but slight improvement, the patient was ordered to take daily 20 minims of thyroid extract (Brady and Martin's). At the end of three weeks the scales and hyperæmia had entirely disappeared. Gordon claims for the treatment a therapeutic value, though unable to assert that the thyroid extract has any controlling influence on the specific poison beyond that which it exerts on the nutrition and function of the skin.

[The experience of the writer leads him to believe that this method of treatment is of value in cases of syphilitic cachexia, and that by improving the general condition of the patient, it enhances the effect of mercury and the iodides, which should be administered coincidentally.]

#### **4. The course of syphilis as influenced by the early internal treatment with mercury.**

L. Jullien (*Journ. Cutan. and Gen.-Urin. Dis.*, Oct., 1894, and *Monatsh. für prakt. Derm.*, Band xviii., Heft 9) concludes that a quick saturation with mercury goes far towards preventing the occurrence of tertiary symptoms, and believes that by a more energetic and persevering treatment with mercury, it might be possible either entirely to ward off the tertiary stage, or to modify it to such a degree as to render it of little importance. The mode of treatment he recommends is by intramuscular injections of calomel suspended in liquid vaseline (1 ad 10). His opinion, with reference to the disadvantages of this treatment, has been alluded to above. He reiterates the fact that

there is no danger of mercurialism and salivation, with the further proviso that the kidneys are acting well, and the gums are in sound condition. There is no danger of abscess if the injections are made at the patient's home, and if he is kept quiet for one or two days. The saturation of the system with calomel can be recognised by gingivitis, a sense of tightness in the chest, and a tendency to syncope. The injections are commenced immediately the diagnosis is made, and are given twice a month for the first two months, and thence up to the sixth month at intervals of from twenty to thirty days. The usual dose is 10 centigrammes. Under this treatment the secondary symptoms, if they appear at all, are so modified or faintly marked as to be hardly recognisable.

### **5. Mistakes in the treatment of syphilis.**

George Fox read a paper on this subject before the Genito-urinary Section of the New York Academy of Medicine (*Journ. Cutan. and Gen.-Urin. Dis.*, June, 1894). He traversed the statement that syphilis is an incurable disease, and maintained that it tends to run a natural course, and to get well of itself; the prognosis was good even though no treatment was adopted, while with the methods at our command, no disease furnished such good results. It was a mistake to imagine that mercury and the iodides were the only remedies for the disease, for, in anæmic patients, iron should be regarded as an antisymphilitic remedy, while in strumous patients cod-liver oil was very serviceable. It was impossible to state definitely what period of time was necessary to effect a cure, for the course of the disease varied in different individuals, and the period of treatment must likewise vary according to the severity of the case. Nor should all ailments occurring in a syphilitic subject be ascribed to that disease—for instance, many lesions on the tongue and mucous membrane of the mouth, which were considered as specific, were really the result of digestive disturbances, and would be remedied only by a correction of such disturbance. In the discussion which ensued, opinion was divided as to the benignity and self-limitation of the disease. Fordyce said that the greatest mistake that could be made in the treatment of syphilis was to regard it as a benign disease; this was true of the majority of cases, but there was a certain percentage in which some serious or incurable lesion of the viscera or nervous system resulted. As it was impossible to say whether any case would be benign or malignant in its manifestations, it was well to regard all cases as severe, and to treat them as such. From the standpoint of the dermatologist, who only saw the cutaneous manifestations, syphilis was doubtless



benign, but its serious sequelæ were observed by the neurologist or the general practitioner. Certain malignant cases would persist in spite of treatment. He had not formed a high opinion of iron or cod-liver oil as antisymphilitic remedies, but considered that if anæmia were present, it would disappear under the administration of mercury.

#### **6. Iodide of potassium in syphilis.**

*Le Concours Médical*, June 16, 1894, gives a summary of a lecture by **Mauriac** on the administration of iodide of potassium in syphilis. It is indicated, not only in the tertiary stage of the disease, but for the primary lesion when the induration is extensive and resembles a gumma, when it is freely ulcerating or phagedænic, also during the initial cachexia, and in the secondary stage. According to Mauriac, the ordinary daily dose should be, for males thirty grains, and for females fifteen grains; if given in less quantity the therapeutical effects are equivocal or absent, and it is with the smaller doses that the symptoms of iodism mostly supervene. As a maximum dose two to three drachms may be given, but there is no necessity to exceed this except in very desperate cases; it is far better to err by giving too large than too small doses. If the stomach will not tolerate the remedy, large rectal injections of a dilute solution, containing forty-five grains to one drachm of the salt, are recommended. By giving it at the conclusion of meals, its contact with the mucous membrane of the stomach is avoided, and it is not so rapidly absorbed.

#### **7. A plea for excision of the initial lesion.**

**King**, of Toronto (*Journ. Cutan. and Gen.-Urin. Dis.*, Aug., 1884), states that while the microbe of syphilis has not yet been isolated, it is almost beyond doubt that the disease is caused by a specific germ. In all germ diseases there is a period of incubation of variable length. In a good many the effect of the germs is self-limited, while in others it is continuous. That mild cases of these diseases occur proves either that a smaller dose of the germs was administered, or that the soil was not properly suitable for their growth, or that both these conditions existed together. In all cases we have a period of incubation, of exacerbation, and a period of recrudescence. The intensity of secondary syphilis has been held to be in direct proportion to the extent of the initial lesion; this, the author states, he can confirm, and he has further demonstrated clearly to himself that it is also in direct proportion to the time that the initial lesion has existed. King believes that it is quite impossible to abort syphilis if once the germ has entered the general system in suffi-

cient quantity; but he opines that the course of the disease can be greatly modified by limiting the amount of the poison which enters the economy. Excision has been useful in other diseases where fatal results follow the introduction of a poison, unless measures are taken to counteract it: for instance, the effects of rabies and the bite of a cobra have been prevented by free and early excision. So, with syphilis, if it is possible to see the lesion during the first few hours of its existence, and at once to excise it, the disease may be aborted; at the same time, though the disease is modified by this treatment, the patient must not neglect the customary antisiphilitic treatment.

### 8. Local applications for venereal ulcers.

Güntz (*Sonderabzug aus Memorabilien*, xxxvi. 292; *Epitome, Brit. Med. Journ.*, Nov. 25, 1893) recommends *aristol* in venereal affections when iodoform is objected to on account of its smell. The powder is applied to the sore, a few drops of olive oil are dropped on to the powder, and the whole is covered with some thin waterproof substance, the dressing being changed two or three times daily. *Europhen* is recommended as a topical application by Oefelein and Neuberger (*Monatsheft für prakt. Dermatologie*, ii., 1893). Its drying powers, its absence of smell, and non-irritating properties, give it the advantage over iodoform. It was found to be superior to *aristol* as an application to phagedenic sores, but in tertiary syphilitic ulcers it compared unfavourably with calomel.

W. Parker Worster, of New York (*Journ. Cutan. and Gen.-Urin. Dis.*, Feb., 1894), advocates the treatment of chancre with *peroxide of hydrogen*, which substance, he states, cures the sore in the shortest possible time, without pain or detention from business, and with less scar and less destruction of tissue than any other method. The peroxide of hydrogen was applied by means of a spray to the sores with full-strength solution, and at sixty pounds' pressure; subsequently iodol powder was dusted on. According to Worster, the pressure of the spray is one of the most important factors in this method of treatment, not only cleansing and producing thorough asepsis of the sore, but aërating the blood through the neighbouring capillaries, and so arresting the progress of the disease with a minimum of destruction of tissue and of subsequent scarring. The spray is used once daily, and the iodol powder is used only as an antiseptic to protect the sore from external influences in the intervals between the applications of the spray.

### 9. Seminal vesiculitis and urethral discharge.

Eugene Fuller, in a thesis on persistent urethral discharges

dependent on subacute or chronic seminal vesiculitis, recommends the following treatment of this condition (*Journ. Cutan. and Gen.-Urin. Dis.*, June, 1894). He believes that most of the cases of apparently incurable urethral discharge are due to this cause, and that if a rectal examination be made, the vesiculæ seminales will be felt to be enlarged and tender to the touch. Treatment directed to these organs, and to them alone, was found to cure the discharge, and hence it is inferred that the morbid condition of the seminal vesicles was the cause of the discharge. The treatment employed consists in squeezing out the contents of the enlarged vesicles with the forefinger, introduced into the rectum to its full extent, and by pressing it slowly and firmly forward along the line of the vesicles. This manœuvre is aided by counter-pressure over the pubes with the free hand. This treatment should be employed once in five to seven days, a long interval being allowed to elapse between treatments should signs of acute inflammation appear as a result of the manipulations. The duration of the treatment may last from a month to possibly a year, according to the chronicity of the condition. The parts which at the commencement of treatment are tender, indurated, and distended, gradually diminish and finally disappear as resolution takes place; the urethral discharge customarily disappears before a cure of the seminal vesicles is attained. It must, however, be borne in mind that the vesicles may be the seat of tuberculous deposit, in which case the condition would become aggravated by this treatment; in tubercle there will usually be present other symptoms of this condition, and, further, the vesiculæ are the seat of firmer and more localised indurations, while the fluid distension is absent.

**R. W. Taylor**, of New York, read a paper on this subject before the American Association of Genito-Urinary Surgeons (*Journ. Cutan. and Gen.-Urin. Dis.*, August, 1894). In the more acute forms of the disease he recommends the application of a large number of leeches to the perineum and the margin of the anus. Injections of cold water may be used, and the rectum may be packed with ice, if the procedure is pleasant to the patient. Opium in suppositories, diluents and saline cathartics may be administered as required. If an abscess forms, it may be opened, either by an incision in the perineum, or through the anterior aspect of the rectum.

In cases of chronic seminal vesiculitis, Taylor found the treatment recommended by Eugene Fuller, which has already been alluded to, difficult of execution and unreliable, it being



impossible by this procedure to empty more than a quarter of the dilated reservoir.

### 10. The treatment of chronic urethritis.

Frank Lydston (*Journ. Cutan. and Gen.-Urin. Dis.*, April, 1894) believes that internal urethrotomy of the anterior portion of the urethra acts almost as a specific in cases of chronic urethritis, and that in such cases the preliminary measure of treatment is the removal of all coarctations in the anterior urethra. The author does not agree with deep urethral instillations by means of Ultzmann's syringe, for in his hands the result of such applications had been disappointing, and he regards them as homœopathic weapons against a profound pathological process. By far the best method of treatment of chronic urethritis, both anterior and posterior, was by means of copious antiseptic irrigations; the solutions used might be varied in strength and composition. Lydston places them thus in order of relative merit:—(1) Permanganate of potassium; (2) nitrate of silver; and (3) perchloride of mercury. The last application had proved somewhat disappointing, but the two former had proved extremely valuable; it might be found useful to alternate these two, the permanganate being used of a strength of 1 ad 5,000 and the nitrate of silver from  $\frac{1}{2}$  to 1 per cent. The deeper portions of the urethra could, in the majority of cases, be flushed by means of a short urethral nozzle.

In a paper read before the New York Academy of Medicine, F. Tilden Browne (*Journ. Cutan. and Gen.-Urin. Dis.*, May, 1894) remarks that in acute posterior urethritis, tenesmus is the all-important symptom, and that it should be relieved by the use of suppositories or deep injections of cocaine or morphia; the urine should be rendered alkaline, and sandalwood or salol administered internally. After the subsidence of the acute symptoms, deep urethral injections of very weak solutions of nitrate of silver may be employed. The symptoms of chronic posterior urethritis are similar to those of the acute form, except that tenesmus is usually absent. Deep pressure over the membranous urethra and perineum might reveal tenderness in the urethra, and then a urethroscopic examination should prove of value; any deep urethral lesions thereby exposed should be treated with applications of a 3 per cent. solution of nitrate of silver.

### 11. Alumnol in gonorrhœa.

Schwimmer (*Journ. des Maladies Cutan. et Syphilit.*, May, 1894) advocates the use of an aqueous solution of alumnol of the strength of .5 to 5 per cent. in cases of acute gonorrhœa,

either in the shape of urethral irrigations or instillations. The results had proved favourable, despite the fact that the treatment provoked a certain amount of irritation. It was equally successful in cases of chronic urethritis, and had also been employed in gonorrhœal vaginitis in the form of irrigations or on tampons. According to Schwimmer, it has the advantage over nitrate of silver, that it does not combine with albumen, and can consequently penetrate into the deep layers of the mucous membrane.

On the other hand, Sander (*Berlin klin. Woch.*, No. 12, 1894) considers that alumnol cannot be regarded as a specific, being no improvement upon other applications in acute cases. In the chronic discharges its action resembled that of nitrate of silver.

### 12. Gallobromol in gonorrhœa.

Caseneuve and Rollet (*Journ. de Méd. de Paris*, Feb. 18, 1894) have tried gallobromol in gonorrhœa. One case of acute gonorrhœa, verified by microscopical examination, was aborted by a 10 per cent. solution. Cases in which the discharge was chronic and profuse were treated by copious irrigations of a pint of 1 or 2 per cent. solution. The discharge in such cases quickly disappeared or was reduced to a minimum.

### 13. Urethral irrigations in gonorrhœa.

Lewis (*Kansas City Medical Index*, June, 1894) uses deep injections into the posterior urethra of about 6 ounces of a dilute solution of sulphate of zinc, which solution flowed backwards into the bladder when the instrument was passed to behind the compressor urethræ muscle. Then the catheter being withdrawn somewhat, the solution is applied to the anterior portions of the urethra. Thus the anterior and posterior urethra were thoroughly irrigated; the patient was then instructed to urinate, so that the entire urethra is further washed with the solution. If this fails to cure the discharge a  $\frac{1}{4}$  per cent. solution of nitrate of silver is applied to the entire urethral tract with an Ultzmann's syringe, and stronger solutions subsequently employed till urethral tolerance is established.

### 14. Ichthyol in gonorrhœa.

G. Colosanti (*Riforma Medica*, Jan. 27, 1894, and *Epitome, Brit. Med. Journ.*, Mar. 17, 1894) confirms the favourable opinions on the use of this substance in gonorrhœa, which were recorded in the "Year-Book of Treatment" for 1894, p. 295, § 3. He uses the drug in the form of injections of a watery solution (2 to 5 per cent.). The following is a summary of his conclusions:—(1) In cases of simple and gonorrhœal urethritis injections of ichthyol

are very useful, inasmuch as by this means a remedy which easily and speedily destroys the vitality of the specific organisms of the disease is brought into contact with the urethral mucous membrane ; (2) in addition to its bactericidal action, the drug has an antiphlogistic and resolvent effect ; (3) its mode of action leaves no tendency to stricture ; (4) it causes no pain, but, on the contrary, relieves any there may be, and is particularly valuable as preventing chordee and scalding in passing water.



# THE DISEASES OF WOMEN.

BY G. ERNEST HERMAN, M.B. LOND., F.R.C.P.,

*Obstetric Physician to the London Hospital, etc.*

## I.—DISEASES OF THE UTERINE APPENDAGES.

IN last year's "Year-Book," and in former volumes, attention was called to the occasionally unsatisfactory results of successful removal of diseased uterine appendages. These unsatisfactory results consist, first in failure to relieve pain, and secondly in recurrence of inflammation. I quote first a paper, the author of which proposes, by a more radical proceeding, to make cure certain.

### **1. Radical operation by the vagina for pelvic suppuration.**

Leopold Landau has published a long and important paper on this subject (*Arch. f. Gyn.*, Bd. xlv.). He first gives a summary of our present knowledge of the situations in which a purulent collection may be found in the pelvis and of the causes of pelvic suppuration. He then gives directions as to what he thinks the best methods of dealing with suppuration in the cellular tissue: his epitome of these I shall presently quote. After this comes the most radical part of his paper, viz., his views as to the best way of treating suppuration in the tubes and ovaries. He gives a table of 141 cases of inflammatory disease of the tubes and ovaries, treated by abdominal section. In two of these acute peritonitis was present at the time of operation. Deducting these, 139 cases are left, and of these four died—a mortality of 2·8 per cent.; so that it cannot be said that Landau's views are those of an unsuccessful abdominal surgeon. But the question then comes, are those who recover from the operation cured? Landau says that in a certain percentage the answer must be—"No." There is no small difficulty in ascertaining the final result. The urgency of the indications for the operation, and the amount of benefit conferred by it, are put before us unconsciously tinted by the temperament and bias of the operator, and even with the keenest desire on his part to supply accurate information

the facts present themselves to him coloured by the subjectivity of the patient. The best judgment that Landau can form is that complete cure is attained in from 60 to 70 per cent. The troublesome vaso-motor disturbances that follow the premature climacteric, diminish in a few years. Loss of sexual appetite is an effect of less importance than, on theoretical grounds, might be thought. There are, however, other effects. Abdominal hernias and omental or bowel adhesions sometimes cause so much disturbance as to demand for their relief a repetition of abdominal section. But the great reason of incomplete cure is that the source of recurrent inflammation in the stump and in the pelvic peritoneum and cellular tissue is not removed. In adhesions, in the ligatured stump, in the subperitoneal and parametric cellular tissue, and in the uterus, there are spores and germs, which may again light up old inflammation, and cause fresh suppuration. It is impossible by laparotomy to remove all infective matter. This is even the case in disease limited to one tube; for this is tied at the isthmus, and virulent germs remain in the interstitial part and in the uterus. How can these failures be prevented? Landau's answer to this question consists in three statements:—First, that in these cases, one and the same infection inflames the tubes, the pelvic connective tissue, and the pelvic peritoneum. Secondly, that till recently the treatment of these cases was very incomplete, consisting either in opening abscesses by the vagina, or removing ovaries and tubes by laparotomy—modes of treatment unsatisfactory for the reasons given above. Thirdly, that there is a preferable operation, viz., the extirpation by the vagina of the uterus, tubes, ovaries, and the lining membrane of abscess cavities. Péan broke ground in this direction by urging removal of the uterus in pelvic suppuration. "It seems bad surgery," says Landau, "to remove the healthy uterus for suppuration of tubes and ovaries, and leave behind the parts which were the chief seat of disease. Nevertheless, the results of this operation, according to those who have practised it, are better than those following the abdominal removal of inflamed uterine appendages." Landau has gone further, and removes by the vagina, not only the uterus but its inflamed appendages. He relates thirty cases in which he has performed this operation without a death. In four of these the abdomen had to be opened also, on account of some complication. The bladder was opened twice, and the bowel twice, during operation, but no permanent ill-effects followed. The operation was in the first case difficult, but experience has taught Landau how to improve his *technique*. He has given up ligature, and uses pressure forceps instead. The

diseased parts are removed piecemeal. It is only by doing it in this way that the field of operation is throughout visible, and it is of the first importance that the whole operation should be done with the aid of sight.

The following is an abridgment of Landau's summary of his views upon the treatment of pelvic abscesses :—

1. In a unilateral and unilocular pelvic abscess, incision is indicated, either through the vagina or through the abdominal wall (according to the situation of the abscess), followed by drainage. Occasionally incision in both places may be needed, but generally not. If the abscess is unilocular, it makes no difference whether it is intra- or extra-peritoneal.

2. In relapsing multilocular pyosalpinx, on one side only, laparotomy, with extirpation of the diseased part, is the treatment. If extraperitoneal suppuration is also present, mostly first found out during the operation, this must be incised from the vagina and the abdomen closed.

3. In bilateral unilocular suppuration, incisions should be made either through the vagina or through the abdominal wall, just as in unilateral unilocular suppurating cavities. This does not add to the difficulty of any further operative treatment that may be required.

4. In bilateral disease with multilocular suppuration, laparotomy with extirpation of the uterine adnexa is justifiable, but the operation, if successful, does not guarantee permanent cure.

5. It is much better, in bilateral disease and complicated multilocular pus sacs of the tubes (with or without a fistula), in multiple intra- and extra-peritoneal abscesses, and in all simple abscesses in which more conservative treatment has failed, to do the radical operation, that is, the extirpation of the uterus and its adnexa, the emptying of abscess cavities and removal of abscess walls, by the vagina.

6. This radical operation by the vagina gives better results if done by cutting up the uterus, and stopping bleeding with pressure forceps. It is not probable that the removal of the uterus alone, leaving the pus sacs behind, as practised by Péan and Segond, is enough.

7. If removal by the vagina is impossible, then, after removal of as much as can be removed by the vagina, the abdomen should be opened, and what is left removed by this route.

8. In some cases it is possible to ascertain, before the operation, that the diseased structures cannot be got completely away by the vagina. In these, and in cases in which it is not certain that the suppuration is bilateral, the operation should be begun by



abdominal section. The parts can then be freed from adhesions, and their removal completed by the vagina.

9. After removal of the internal genitals by a combined operation of this kind, it is beneficial, in order to favour the most perfect drainage, to leave the vaginal wound as widely open as possible, and to put a glass drainage-tube, 1 to 2 centimetres in diameter, and 15 centimetres long, in the lower angle of the abdominal wound.

10. The excellent results, both immediate and permanent, of the radical operation above recommended, should cause it to be preferred in all cases in which the bilateral removal of the uterine appendages, leaving the uterus behind, is at present thought indicated.

11. It is most necessary to attach more importance than has hitherto been done, to the ascertainment, before operation, whether the disease is bilateral or not, lest women should be mutilated by hysterio-salpingo-oöphorectomy, who might have been cured by more conservative treatment.

12. For the better interpretation of statistics, cases ought to be more carefully classified, according to the seat of the suppuration, and not grouped under comprehensive terms, such as "pelvic suppuration," "inflammation of appendages," etc.

It is obvious that Landau's operation must relieve the patient of all trouble directly due to the condition of her internal genitals. All will, I think, agree with the twelfth paragraph of his summary. His recommendations gain in force from the care with which he particularises the cases suitable for his operation; he at least will not be answerable should it be performed in too wholesale a fashion.

Operations for the removal of part or the whole of the internal genitals, however successful, have this disadvantage, that they rob the patient of certain possibilities which she may value. If disease of the uterine appendages can be cured without depriving the patient of the function of the parts, it will be a great gain. American enterprise is aiming at this, as will be seen in the paper to which I next refer, and at bringing slight cases under the control of the surgeon instead of leaving them to nature.

## **2. Operations upon the uterine appendages with a view to preserving the functions of ovulation and menstruation.**

W. M. Polk (*Amer. Gyn. Trans.*, Vol. 18) writes a paper with the above title. It is practically a continuation of a former paper which I quoted in the "Year-Book" for 1893, p. 316. The volume which contains Polk's paper also

contains one by **A. Martin**, of Berlin, headed, "By what authority are resections of the Fallopian tubes and ovaries and the enucleation of myomata characterised as 'surgical amusements'?" The practice advocated by Polk and Martin is, in England at least, so novel that it deserves mention here. I do not purpose to do more, for the reasons that I shall state. If followed, it will completely change the ground upon which the surgical treatment of the uterine appendages at present justifies itself. **Lawson Tait** and his followers have advocated the complete removal of the uterine appendages on both sides when they are the subject of chronic inflammation, on the ground that this inflammation often endangers life; that it is kept up and aggravated by the functional activity of the sexual organs; that therefore the best way to restore the patient to health is to remove the damaged parts entirely, and by stopping the functional activity of the parts not removed, thus to protect the patient from a rekindling of the inflammatory change. This theory is intelligible; and if its truth be admitted even as probable, it is clearly right to advise the patient to run some risk for the sake of avoiding future danger and pain.

But Polk's operations are done on patients in whom there is no supposition that their life is in danger, or that their disease is incurable, or that sexual activity is injurious. His practice seems to be, if the patient has pain, and there is any thickening around the uterus, to open the belly; if there are adhesions, break them down; if the tubes are closed, open them; if their mucous membrane is thickened, scrape it; if this is not enough, cut away part or the whole of the tube; if there are cysts in the ovary, puncture them, or cut away part of the ovary.

Pelvic peritonitis is so common, that if operations of this sort come to be recognised as proper, the field of action of the abdominal surgeon will be enormously increased. Some people think that even in England the surgical treatment of pelvic peritonitis is by some operators practised too readily; but what is done here is almost nothing compared to what will be done if Polk's practice should be approved. It will be clear in the first place that operations so grave could never be tolerated for such reasons, unless the operator be so skilful that they can be performed with not more than a trifling mortality. In this paper Polk relates twenty-eight cases without a death. If we accept the mortality as being low enough to warrant operation, we want next to know what reason there is for supposing that the patients after operation were any better than they would have been after medical treatment? We want to know also,

how long does the improvement after this surgical treatment last? Polk's paper unfortunately contains no information which enables us to form an opinion on these points. We are not told how, or for how long, the patient was treated before operation was decided on. We are not told, except in a few cases, how long after the operation her condition of health was known to the reporter. I note, without much surprise, that several speakers in the discussion seemed to doubt the necessity for these operations. Seeing how imperfect the report is, I do not think it worth while to refer to cases in detail. It seems indeed to be only a provisional communication; probably at a future time Polk will publish a fuller account of his cases.

There are other diseases of the Fallopian tube besides inflammation. The next paper is, I think, a solid contribution to our clinical knowledge.

### 3. Intraperitoneal hæmatocele.

Anything that makes more exact our diagnostic knowledge helps in treatment, and for this reason I quote a communication by John W. Taylor (*Med. Press and Circular*, July 18, 1894) on intraperitoneal hæmatocele forming a definite tumour. Taylor's views as to the cause and nature of the tumours he described are based on accurate examinations of the conditions present when the abdomen had been opened. A high authority has stated that there is no such thing as intraperitoneal hæmorrhage forming a definite tumour; that when such bleeding occurs, the blood lies free in the belly, and the only sign of hæmorrhage is the bloodless appearance of the patient; that if a tumour is formed the blood is outside the peritoneum. A correct view on this point has an obvious bearing on treatment. Taylor shows that intraperitoneal hæmorrhage does sometimes form a definite tumour, and that a comparatively common cause of this is the slow hæmorrhage or blood-drip which takes place from the open end of a Fallopian tube when a developing ovum or a mole is within it, although no rupture of the tube has taken place. A mass of effused blood thus poured out may be found in one of four conditions:—(1) A mass of clot easily scooped out by the fingers or washed away with water. (2) A clot adherent to the peritoneum, which, after removal of the clot and washing, remains rough. (3) There are extensive adhesions between the Fallopian tube and neighbouring parts (often the ovary) forming a cavity into which the bleeding has taken place, the blood distending the new adhesions. (4) The blood is contained in a distinct cyst wall formed of coagulated fibrin; a condition like that which, occurring in the uterus, is styled a "fibrinous polypus." When



this condition is present, the parts may remain practically *in statu quo* for months or years. In one of the cases which Taylor relates, the pelvic tumour was known to have been present for two years. If we could diagnose that the tube was in this condition, it is evident that our advice as to operation would be much less urgent than if the diagnosis of developing extra-uterine gestation were made. Taylor submits the following clinical propositions: "Where one finds a history of amenorrhœa, followed by irregular loss, together with signs of a tubal tumour in a woman of child-bearing age who has been previously healthy, there is every reason to suspect that extra-uterine pregnancy has begun. Where the other signs and qualifications are present, but the history of amenorrhœa is wanting, the diagnostic probability lies in favour of so-called 'tubal abortion.' And the reason of this seems obvious. A small mole of pregnancy in an otherwise pervious tube must cause some hæmorrhage in both directions at a very early stage. The more vital pregnancy which seizes the tube for its site and closes it completely, will check the menstrual periods as in normal pregnancy until at or about the time of rupture of the tube."

Taylor does not think the term "tubal abortion" either a happy or an exact one, for he has failed to find in any cases (his own or others) evidence of extrusion of the mole.

I quote next a paper which will help to guide the operator in a class of operations, the propriety of which is not questioned by the most conservative physicians.

#### **4. Cancer growth after ovariectomy.**

Pfannenstiel (*Zeit. f. Geb. und Gyn.*, Bd. xxviii.) has written an important paper on this subject. Cancer growths after ovariectomy (other than recurrence of growth already malignant) are of three kinds:—(1) Cancer growing in some other organ, of type peculiar to that organ, and quite independent of the ovarian disease or the operation. (2) Epithelial cells from an adenomatous tumour, left behind at an operation, may become the origin of malignant disease. (3) Cancer may grow in the scar, from the accidental inoculation of the wound with particles of the tumour during the operation.

From these pathological possibilities, the following rules for practice are urged by Pfannenstiel. In ovariectomy, both the peritoneum and the abdominal wound should be preserved from contact with the contents of a cystic tumour. Tumours that are not too large should, if possible, be removed unopened; it is better to enlarge the incision than to open the tumour. If the tumour must be tapped, the peritoneum and the wound should

be protected by gauze serviettes packed round the place of tapping or incision, and held in close contact with the tumour by the pressure of an assistant's hands. In every case in which the tumour removed is of a kind known to be often bilateral—carcinoma, sarcoma, papilloma—both ovaries should be removed, whether the other ovary appear healthy or not, and whatever the age of the patient; and in every ovariectomy in a patient over the age of forty, both ovaries should be removed.

I shall subsequently quote a paper in which the possibility of accidental inoculation of cancer is shown to be a fact of high clinical importance.

I refer next to a paper, the gynæcological importance of which is in the diagnosis of abdominal tumours.

### **5. The anatomical relations of cysts of the pancreas.**

Though diseases of the pancreas do not come within the domain of the gynæcologist, yet one who opens the abdomen thinking he has to do with an ovarian cyst may find that the cyst is of the pancreas. **Rotter** (*Zeit. f. Geb. und Gyn.*, Bd. xxvii., p. 228), in discussing a paper by **Flaischlen**, gave the following account of the relations of pancreatic cysts. There are three ways in which pancreatic cysts may find room for their development:—(1) The cyst may push forwards the hinder wall of the omental cavity, so that in front of it are the stomach and gastro-colic omentum, below it the transverse colon, above it the liver. This is the position of three-fourths of pancreatic cysts. If the tumour increases in size, the stomach is pushed upwards and the colon downwards, so that the gastro-colic omentum is in front of the cyst. The transverse colon may be so displaced that it lies behind the symphysis pubis. (2) The second mode is that the cyst develops between the layers of the transverse mesocolon, so that the colon runs transversely across it, a little above its centre. It may also raise and push forwards the descending colon. It may be impossible to distinguish a tumour thus developing from a hydronephrosis. (3) The third mode is the development of the cyst in the lower layer of the transverse mesocolon. In that case the transverse colon will lie along the upper boundary of the tumour. A cyst thus developing can be distinguished from a cyst of the mesentery or omentum only by an exploratory puncture.

## **II.—DISEASES OF THE UTERUS.**

I take first the most formidable, viz., cancer. I have three papers to quote about it. The first brings forward considerations

of the highest importance, which should lead to most careful revision of the technique of the removal of the disease. The second paper aims at extension of our operative resources, but is tentative rather than demonstrative. The third deals with the microscopical diagnosis of the disease.

### 6. The recurrence of uterine cancer.

Winter (*Zeit. für Geb. und Gyn.* Bd. xxvii.) has written a long and important paper on this subject. He begins by pointing out what our power of treating cancer of the uterus now is. By our present methods, *cancer limited to the uterus can be removed almost without risk*. But by no method can a satisfactory result be reached if the cancer has extended beyond the uterus. Our results are to be improved by *earlier operations*, and this means earlier diagnosis; and it depends upon the spread of knowledge among doctors and nurses as to the importance of *early diagnosis*. In this paper, Winter seeks to improve our results in another way, viz., by the study of the causes of recurrence. He has minutely examined sixty-one cases of recurrent cancer. By "recurrence," he understands the further growth of bits of cancer which remained behind at the time of operation, either at the site of operation, or in the glands, or in internal organs. The old idea, that recurrence of cancer was cancerous degeneration of healthy tissue, Winter thinks is losing ground more and more.

Winter divides recurrent cancer into three forms:—

(1) *Local recurrence*: that is, the continued growth of cancer either in its primary seat or at some part of the wound made in its removal.

(2) *Glandular recurrence*: that is, continued growth in lymphatic glands.

(3) *Metastatic recurrence*: that is, growth in internal organs, usually localised by the blood stream.

Recurrence of cancer, he states, follows the same laws as the extension of cancer.

(1) *Metastatic recurrence*. Metastatic growths are rare in uterine cancer as compared with other forms of the disease. Winter has collected from different sources accounts of 255 *post-mortem* examinations of bodies of patients dying from uterine cancer. Among these there were secondary growths in the liver in 9 per cent., in the lungs in 7 per cent., in the kidneys in only 3·5 per cent., and still less often in the stomach, bowel, thyroid gland, brain, adrenals, skin, gall bladder, heart, breast, muscles and bones.

He has examined forty-four bodies of patients dying after extirpation of the uterus, while the disease was yet limited to this organ. In not one of these was there any metastatic growth.



He has watched 351 patients from whom the uterus had been removed for cancer. The disease recurred in 202 of these, but in only nine of them, or  $2\frac{1}{2}$  per cent., was the recurrence metastatic. The metastases occurred in the ovaries, stomach, lungs, liver and bones. Not much can be done to prevent metastatic recurrence, for commencing metastatic growth cannot be diagnosed. Metastatic growths in the ovary can be prevented by removing these organs along with the uterus, and, therefore, either this should be done, or at least the ovaries should be examined when the uterus is removed.

(2) *Glandular recurrence.* The first question is, what are the glands to which the lymph corpuscles from the uterus go? The lymph from the vulva and the lower third of the vagina goes to the *inguinal* glands, and a vessel also goes to these glands along the round ligament from the cornu of the uterus. Hence the inguinal glands are affected in cancer of the vulva and lower third of the vagina, and occasionally in cancer of the body of the uterus. The lymphatics of the middle third of the vagina run separately, and those of the upper third of the vagina and the cervix uteri run together, accompanying the blood-vessels, to the *iliac* glands. These glands are two or three in number, situated just below the pelvic inlet, nearly in front of the sacro-iliac synchondrosis, at the bifurcation of the common iliac arteries. The upper of these glands is the larger; the lower and smaller is that which receives the lymphatics from the vagina. No uterine lymphatics run to the obturator glands. The lymphatics of the uterine body and fundus run along the upper border of the broad ligament, between the ovary and tube, and accompany the spermatic artery up to the *lumbar* glands, situated in front of the spine, on a level with the lower end of the kidney.

Glandular recurrence arises from germs left behind in the glands when the primary disease was removed. Its frequency, therefore, depends upon whether the glands are early or late affected. The frequency with which lymphatic glands are affected differs remarkably in cancer of different parts. It seems as if it depended on the greater or less activity of the function of the lymphatics in different parts of the body. In the uterus the glands are attacked very late. Winter has examined fifty cases of cancer too advanced for operation, and he found the iliac glands affected in twelve. In forty-four cases in which the uterus was removed while the cancer was limited to it, he found lymphatic glands affected only in two. It follows, therefore, that while cancer is limited to the uterus, disease of the lymphatic glands is rare; and when the parametria are involved it only

occurs in about one-third of the cases. Of fifty-eight cases of recurrence after operation, the recurrent growth began in lymphatic glands in only four cases. In the fifty-four in which recurrence commenced in the parametria, the glands were affected in twelve. From these facts it follows that although glandular recurrence is rare, it must not be overlooked. In judging whether a cancerous uterus can be removed, the iliac glands should be examined with two fingers in the rectum. The ovaries must not be mistaken for enlarged glands; they are softer, lie nearer the middle of the pelvis, and are more movable. If iliac glands are affected, operation should not be done. It is not possible to remove cancerous iliac glands, much less lumbar. Cancerous inguinal glands can be removed, but it is of little use.

(3) *Local, or wound recurrence.* This means recurrence in the scar, at the primary seat of the disease; that is, at a place which the instruments or fingers of the surgeon have touched. Local recurrence arises generally from small bits left behind when the primary cancer was removed. Local recurrence takes place only in the directions along which primary cancer is wont to extend. Winter has observed the direction of extension in seventy cases of cancer too advanced for operation. Both cancer of the vaginal portion, and cancer of the cervix, spread into the parametric cellular tissue, the former reaching it by way of the vagina, the latter attacking it from the outside of the cervix. The extension of the growth into the cellular tissue is not marked by the formation of a parametric tumour, but only by infiltration of the wall of the cavity formed by the ulceration. The cellular tissue in the anterior part of the pelvic cavity is usually not invaded. Out of fifty-four cases of local recurrence, Winter was able to satisfy himself in thirty-two that the recurrent growth sprang from cancer tissue left behind after the operation; that the removal of the growth was at the time of operation recognised to be incomplete. The recurrence, in these cases, was in the cellular tissue adjoining the scar; never in the pouch of Douglas, and only in two cases on the vaginal mucous membrane. Recurrent growths begin as circumscribed nodules, which increase by peripheral growth, and they spread in the same direction as the original cancer tended to spread.

Out of the thirty-two cases of recurrent growth after imperfect removal, twenty-four were cases of cancer of the cervix, eight only cancer of the vaginal portion. This is because it is more difficult in cancer of the cervix to detect how far the disease has spread, and therefore in this form a larger number of unsuitable cases are submitted to operation.

For the avoidance of such cases of imperfect removal of cancer, Winter thinks the great thing is the selection of cases for operation in which it is certain that the parametric tissue is free from disease. He does not think that any method of hysterectomy much influences the proportion of recurrence of growth. In the details of the operation Winter thinks the advice of **Olshausen** good, to detach the uterus first on the side at which it is most certain that the cellular tissue is healthy, and if the condition of the cellular tissue on the other side is suspicious, to secure it with forceps or ligature as near the pelvic wall as possible, and destroy any suspicious tissue with Paquelin's cautery.

*Inoculation recurrence.* By this Winter means recurrence due to growth of pieces of cancer brought by the operation into contact with healthy issue, and left there. The possibility of such inoculation Winter admits has up to the present time received no support from bacteriology. Winter's belief in it rests entirely upon anatomical and clinical grounds. He quotes a number of reported cases of cancer in other parts of the body, in which bits of cancer were accidentally transplanted to other places, and there grew. While admitting that the vast majority of experiments on animals to see if cancer could be inoculated go to prove the negative, he quotes some in which such inoculation has been effected. His conclusion is, that particles of cancer, broken off from the primary cancerous mass, may adhere to the healthy tissues of the same individual, there grow, and produce a secondary cancer, having all the characters of malignancy; that this is indubitable, and must be borne in mind during an operation for cancer. He says that while many surgeons believe this possible, some think it a theoretical possibility only, and few are so convinced of it that they take measures to prevent its occurrence. Winter relates cases in which he thinks recurrence was brought about in this way. He points out that if it be true that recurrence of cancer is the result of inoculation, it ought to be most frequent in the cases in which inoculation is most likely to take place. In cancer of the body of the uterus, the organ is generally removed entire, and the new growth is not touched. In large masses of cancer growing from the portio vaginalis, on the other hand, it is scarcely possible to prevent contact of cancerous tissue with the wound, either directly or through transference by fingers or instruments. Winter quotes statistics from various investigators, which show that recurrence is least frequent in cancer of the uterine body, and most frequent when there is a large cancerous tumour of the vaginal portion. This fact is in harmony with his view of the importance of inoculation



as a cause of recurrence. He has yet another kind of evidence to bring. Out of thirty-nine cases of cancer of the uterine body, recurrence took place in only nine. In seven of these nine the seat of recurrence was ascertained. In two it was metastatic, in five local. In every one of the five, the uterus had been in some way injured during the operation so that the cancer in its interior was brought in contact with the wound. Winter holds that there can be no serious doubt of the production of recurrence of cancer by local inoculation. It should be a fundamental principle with operators to avoid bringing cancerous tissue into contact with the wound. To this end, Winter lays down the following rules:—(1) During the operation the operator ought not to touch the cancer. If he wishes to grasp it, he should seize it with instruments, not with his fingers. If he has to work close to the cancer, all loose bits of cancer tissue should be carefully washed away with a strong antiseptic solution. No instruments that have touched the cancer should be used upon healthy tissue. The operator should avoid breaking the cancerous mass. (2) Before operation the parts should be prepared so that contact with living cancer tissue may be avoided. All soft and broken-down tissue should be removed with a sharp spoon, until firm tissue is reached. After this Paquelin's cautery should be applied, so that the surface of the cancer may be quite dry. By thus preparing the parts, Winter thinks that not only is recurrence prevented, but convalescence is made smoother. He gives figures in confirmation of the latter statement.

Winter would apply the same principles to the extirpation of malignant ovarian tumours. These, he thinks, ought not to be tapped; and care should be taken to avoid rupturing them during removal, lest pieces of cancer should escape and inoculate themselves in the peritoneum. He gives cases showing the occurrence of such inoculations from malignant ovarian cysts.

### **7. Perineo-vaginal hysterectomy.**

Schuchardt (*Zeit. für Geb. und Gyn.*, Bd. xxviii.) has invented a new way of removing the uterus. The essential points are, that he lays open the vagina by a lateral incision extending from below up to the cervix uteri; and then extends this incision in a half-moon shape round the rectum to the sacrum. The advantage of this operation is that the parts can be well seen, and that lumps of cancer in the cellular tissue can be removed. I do not quote details, because I concur in the criticisms expressed by speakers in the discussion. It is an attempt to make operation possible in cases that had much better be let alone. In cases in which this operation, or one like it, is the only way by which the

uterus can be removed, the removal of the uterus is a palliative operation only, and is hardly worth the discomfort, to say nothing of the risk. But as it seems admitted that Schuchardt's method is original and adds to the facility with which the uterus can be dealt with, I mention it.

### 8. The diagnosis of cancer of the uterine body.

Schönheimer (*Arch. f. Gyn.*, Bd. xlv. S. 157) has written a useful paper on this subject, dealing especially with the microscopical side of the question. He urges that the microscopical examination of scraped-off bits opens the door to the gravest errors, if we rely upon the microscopical preparations alone. Different histologists hold views diametrically opposed to one another. The problem is, where does innocency end and malignancy begin? The uterine lining membrane has its own peculiarities, and therefore must be studied by itself. He quotes different histological authorities, some of whom hold that there is no sharp line to be drawn between carcinoma on the one hand, and adenoma on the other; others that adenoma may develop into carcinoma; while some think that a clear distinction may be made. Schönheimer's conclusion is, that in doubtful cases all methods of diagnosis must be used: history, bimanual examinations, digital exploration of the interior of the uterus, as well as examination of broken-off bits. The histological appearances are but a symptom, an important symptom it is true, but not one decisive by itself. The microscopic signs must be considered in the light of the clinical features and course of the disease.

### 9. The surgical treatment of fibroids.

American enterprise seeks to embrace within the range of surgery a larger and larger proportion of the innocent growths known as fibroids. I quote the views of a number of American gynaecologists, and afterwards a new mode of operation devised by a German obstetrician.

B. F. Baer (*Amer. Gyn. Trans.*, vol. xviii.) states that he has performed hysterectomy by the method described at p. 318 of the "Year-Book" for 1894 thirty-four times, with two deaths. He has come to the conclusion that "drainage in abdominal surgery is a delusion." The cardinal features in which Baer's operation differs from any other are that "the cervix is left without a ligature or suture in its tissue," and that "nothing whatever is done to the cervical canal." "The vital principles in supravaginal hysterectomy are, first, control of hæmorrhage by ligature of the blood-vessels in the broad ligaments; second, non-constriction of the cervical tissues, so that there shall be no cause for suppuration;

and third, non-disturbance of the cervical canal, so that sepsis from the vagina may be prevented." Baer urges early operation for uterine fibroids; and he thinks that removal of the uterus and tubes should be abandoned in favour of hysterectomy, on the ground that the former operation, like the natural menopause, sometimes fails to cure.

(10.) **J. Riddle Goffe** (*Amer. Gyn. Trans.*, vol. xviii.) gives a brief history of the different modes of dealing with the pedicle that have been employed. He relates six cases, with one death. He speaks of Baer's method with such approval that I presume it is the method he would follow in future, with the exception, that instead of leaving the cervical canal alone, as Baer does, he tries to maintain drainage through it.

(11.) **S. C. Gordon** (*Amer. Gyn. Trans.*, vol. xviii.) says he has performed twenty hysterectomies, with four deaths. He ties the broad ligament and uterine arteries and then "enucleates" the cervix.

(12.) **Matthew D. Mann** (*Amer. Gyn. Trans.*, vol. xviii.) advises removal of uterine appendages for fibroids only when the tumour is small and the ovaries or tubes are diseased. He has performed twenty-one hysterectomies, using the clamp, with two deaths; fifteen after the method of Polk ("Year-Book," 1894, p. 318), with one death; two after Baer's method, both of which died from septic peritonitis. He thinks that, had he made provision for drainage through the cervix, the result might perhaps have been different. He says that the rapid convalescence after Polk's operation is "something remarkable."

In the discussion on the above papers, Polk advocated hysterectomy rather than removal of the uterine appendages, on the ground that a woman whose uterus has been left after she has been deprived of her ovaries, is better off without it. He thinks the best operation is that in which the cervix is completely removed. **Joseph Taber Johnson** said his experience was chiefly with the clamp. He had removed the uterus by Bantock's method thirty times, with three deaths. He admitted that convalescence was longer after this operation, but thought that this was a less drawback than prolonged manipulation at the time of the operation.

(13.) **H. J. Boldt** (*Amer. Gyn. Trans.*, vol. xviii.) relates twenty-one cases of hysterectomy, with six deaths. He removes the cervix. When possible, he begins by freeing the cervix and tying the parametria by the vagina, and then completes the operation from above. If the size and situation of the tumour are such as to pull the cervix high up, this cannot be done, and then he does the whole of the operation from the abdomen.



(14.) **Stansbury Sutton** (*Amer. Gyn. Trans.*, vol. xviii.) practises the extraperitoneal method, using the elastic ligature. His hysterectomies by his method, he says, have given him no more trouble than his ovariectomies.

(15.) **Archibald Maclaren** (*Amer. Gyn. Trans.*, vol. xviii.) describes two cases of hysterectomy by Baer's method, and in commenting upon it does justice to the work of English operators, Milton and Treves, who had practised the essential features of this method without any suggestion from America.

As contributions to the perfecting of operative technique, these papers are valuable and pleasing. But I cannot help wondering at the number of cases which come to individual operators within a short space of time, all of them thought to require this severe and dangerous operation. I find one operator gravely urging that *every* fibroid should be removed, for that if it be not giving trouble it is sure to do so by-and-by. If this view meets with approval, I can understand the number of hysterectomies. Such practice is no doubt conducive to the advance of surgery; but whether it will increase the confidence of the public in their medical advisers is another matter.

### 16. Vaginal laparo-myomectomy.

**Dührssen** has invented a new way of removing uterine fibroids (*Zeit. für Geb. und Gyn.*, Bd. xxviii., S. 401), to which he has given the above name. It consists in opening the vesico-uterine pouch by a transverse incision, enlarged if necessary by a longitudinal one also, and then pulling the body of the uterus down through this opening, enucleating the tumour, sewing up the uterine wound, replacing the uterus, and closing the vaginal wound. Not only can fibroids be removed, but the uterine appendages can be treated in this way. The advantage of it is, that it leaves no scar in the belly wall. The necessary conditions for success are: (1) it must be possible to pull the uterus down; (2) the tumour must not be larger than the fist; (3) it is not suited to intra-ligamentous tumours, or to cases in which there are extensive adhesions. **Dührssen** has performed the operation three times.

I quote next a case important from its exceptional nature.

(17.) **G. William Reynolds** (*Amer. Journ. of Obst.*, vol. xxix., p. 195) relates a case of pyometria, interesting from its rarity and the difficulty of diagnosis. The patient was aged 53. Her youngest child was 14 years old. Menstruation had ceased for a year. Her complaint was of pelvic pain. The pelvic brim was filled by a tumour, which reached to the umbilicus. No os uteri could be felt. It was at first taken for a fibroid, but obscure fluctuation,

and the absence of the os uteri, suggested the presence of pus. It was punctured by the vagina, and a quart of pus let out. The uterine cavity was washed out, and a drainage-tube put in. The cavity was ten inches long. Three weeks afterwards the patient went out well, the uterine cavity being two and a half inches long. Reynolds quotes a somewhat similar case published by Bakonski. In the discussion on this paper (p. 245) experience was related which went to show that gauze drainage of the uterus is not so good as that by an indiarubber tube.

### **18. The operative treatment of backward displacements of the uterus.**

There is no doubt that displacement of the uterus backwards, or downwards, causes in many patients much discomfort. The continual wearing of a mechanical support is an imperfect treatment, for however great the relief given may be, the presence of the pessary is a drawback. Hence attention is being given to the possibility of surgically making the patient independent of pessaries.

Ernest W. Cushing, of Boston (*Amer. Gyn. Trans.*, vol. xviii.) has written a valuable paper on this subject. His opinion is that in virgins the objections to treatment by pessaries are so grave, that operative treatment should be advised as soon as it has been ascertained that the displacement is causing symptoms. In married women, it need only be considered if treatment by pessaries fails to relieve.

Cushing then considers the different kinds of surgical treatment. He dismisses (rightly, in my opinion) all the vaginal operations for sewing the uterus into a position of ante flexion as "not worthy to be compared with shortening the round ligaments or with ventro-fixation." The results of Alexander's operation Cushing finds often satisfactory, but there are certain disadvantages, which are these:—1. It is difficult. 2. The ligaments sometimes break. 3. The wounds sometimes suppurate. They suppurate because (a) the tissues are extensively injured in searching for the ligaments; (b) the vitality of the ligament is injured, because it is detached from its nutritive supply; (c) cellular spaces are opened which cannot be closed by suture. 4. The ligaments may slip back. 5. There are two wounds, as against one in ventro-fixation, and consequently twice as much chance of hernia. 6. There are more deaths from Alexander's operation than from ventro-fixation. 7. The results of Alexander's operation are often unsatisfactory, so that ventro-fixation has to be afterwards done. 8. Lastly, Alexander's operation does not aid diagnosis.

Ventro-fixation, on the contrary, is easy ; when the abdomen is opened the condition of the uterus and its appendages can be ascertained with exactness, and adhesions can be separated. Cushing has known several unreported cases of death from Alexander's operation. There are two ways of elevating the retroverted uterus when the abdomen has been opened. One is by suturing the uterus to the abdominal anterior wall. The other is by folding up and shortening the round ligaments, by sewing together the folds of a loop in the ligaments.

Cushing has performed Alexander's operation thirty times. He has had one death. In one-fourth of the cases one or both wounds have suppurated. Once the operation was followed by hernia. Most of the patients were cured of their sufferings, but five or six said they were no better. He has performed an abdominal operation for the cure of backward displacements eighteen times. All recovered. In all the uterus was held permanently (*sic*) in its new position (Cushing does not explain how long "permanently" means). Sixteen of the patients were thoroughly cured of their sufferings ; in two nervous symptoms persisted. The abdominal operation which Cushing prefers is the intra-abdominal shortening of the round ligaments.

### 19. The operative treatment of prolapsus.

G. M. Edebohls, of New York (*Amer. Gyn. Trans.*, vol. xviii.), relates cases of this operation. In one the uterus has kept in place two years ; in three for a year ; in two for shorter periods, and one has been lost sight of.

20. R. Werth, of Kiel, has published, in the "Festschrift" for the Jubilee of the Berlin Society for Obstetrics and Gynæcology, a paper on the operative treatment of the retroflexed movable uterus. These operations, he says, are not approved by the leading gynæcologists of Germany. The disfavour is based on two grounds : (1) that there is no operation both safe and satisfactory ; (2) that if a simple retroflexion of a movable uterus is recognised as an adequate reason for operating, a great many unjustifiable operations will be performed. Werth admits that in many cases of retroflexion, the symptoms present are either due to some other pelvic disease, or are altogether nervous. Still, there are cases in which the displacement is at least a part of the disease. In such, a vaginal pessary is the first line of treatment. Intra-uterine stems Werth rejects absolutely. The cases for operation are those in which a vaginal pessary will not correct the displacement. They are few, but they exist. Even if the pessary is successful, it requires continual attention, and in this respect operative treatment has the advantage. Some patients live in places



where they cannot get the attention necessary if they wear a vaginal pessary.

Werth has tried an operation similar to that of Dührssen (see "Year-Book," 1893, p. 331), but with an unsatisfactory result. In 1887 he began to do Alexander's operation, but has postponed reporting his cases until he was able to state the result after the lapse of years. He has operated on forty-eight cases, but has been able to follow the after-history in only thirty-five. Among these there were two failures to correct the displacement, or 5·7 per cent. The cases have been watched for periods of from three months to six and a quarter years. Ten of these have borne children after the operation. He has never lost a case. He has sometimes had considerable hæmorrhage. In two cases a ligament broke. During the first days after the operation he finds the patients generally very uncomfortable; the wounds are very painful; there is much pain in the back, and flatulence. In fifteen of his cases there was long-continued pain in the scar, aggravated by coughing, straining, chills, or change of weather. Three of those who became pregnant had a good deal of pain in the scar during pregnancy. In one case bilateral hernia followed the operation. Werth's opinion at present is, that in suitable cases Alexander's operation is better than any other means for permanently restoring the normal state of things; and its essential risks and disadvantages are not great enough to be important.

## **21. The operative treatment of prolapse.**

Jacobs (*Nouv. Arch. d'Obst. et de Gyn.*, 1894, Suppl., p. 169) gives the following results:—Colporrhaphy (anterior, posterior, or both—with and without amputation of cervix), seventy-seven cases, forty of them watched during periods of from one to four years: Twenty-eight cures, twelve relapses. Abdominal hysteropexy, twelve cases, eleven of them watched for from one to four years: Five cures, nine relapses. Vaginal hysterectomy, seven cases, watched for from one to two years: Seven cures, but in two of them vaginal prolapse persistent.

## **22. Suprapubic fixation of the uterus.**

Thomas Keith (*Lancet*, vol. ii., 1894, p. 679) describes an operation to which he gives the above name, and which he and his sons have performed fifty-two times, for the relief of cases of retroversion and prolapse in which they had not been able to adjust a suitable pessary. The operation consists in opening the abdomen, bringing out the ovary, tube, and broad ligament on one side (preferably the right, because on this side it can be done with less tension on the bowel), securing the parts brought out

with a ligature to prevent their spreading out, then accurately closing the wound round this pedicle, and, lastly, applying a clamp on a level with the surrounding surface. He says: "When the wound had healed it was impossible to tell from the cicatrix whether a clamp had been used or not. In none of the cases was there even a trace of hernia, and no wound ever suppurated. Every now and then, mostly in the early cases, from over-anxiety to close the wound very accurately there was a prolapse of the pedicle, but harm never resulted." None died, and all were cured permanently. Keith gives no information as to how long he or his sons have watched the fifty-two cases, so that the reader cannot tell the precise meaning of the word "permanently." Keith thinks that the above operation is by far the simplest way to effect a cure, and that it is far better and freer from risk than any method of stitching the uterus to the abdominal wall; from any such operation he thinks a death must come every now and then. He regards it as a great advantage in his own operation that the uterus is not touched, but he does not explain why it is worse to touch the uterus than the broad ligament. His operation he regards as free from danger to life, while cases of the other have been published showing a mortality of one in ten. (But I must point out that this is only the mortality of certain operators; the collective mortality is far below this.) Although Keith thinks this clamp operation is less dangerous than stitching the uterus, yet in the early days of ovariectomy clamp operations were more fatal than those in which the abdomen was closed. Keith's main argument, and one that must be allowed to have some force, is, that adhesions of the peritoneum may, and Keith thinks certainly will, disappear, while if the uterus is suspended by the broad ligament this cannot happen. (Is it not possible that the adhesion between the broad ligament and the scar might stretch?) The only drawback that he sees is that it necessitates the loss of an ovary; but then, he adds, one ovary is as useful as two.

### **23. Removal of the uterus for prolapse.**

In a discussion on this subject at the Obstetrical Society of Berlin (*Zeit. f. Geb. und Gyn.*, Bd. xxvii., s. 195) Veit remarked that he had recently seen a very large vaginal enterocele in a patient whose uterus had been removed for prolapse, and whose case had been published as a complete cure. The patient's sufferings were worse than before the operation. (I have seen a vaginal enterocele after extirpation of the uterus for cancer.)

### III.—DISEASES OF THE VAGINA AND EXTERNAL GENITALS.

The first paper that I refer to is one that may help in the application of bacteriology to clinical purposes.

#### **24. The clinical value of the gonococcus.**

Carry (*Lyon Méd.*, January 28, 1894) one of the surgeons whose business it is to make the periodical examinations of public women in France, has used the opportunities thus given to him to investigate the clinical value of the gonococcus.

First, as to the ordinary methods of examination. Chancres are easily identified; not so gonorrhœa. Discharges are often seen without definite characters, more mucous than purulent, greyish white rather than yellowish white. In this case, reference is made to the girl's previous records; if the discharge is found to have been of old standing, no notice is taken of it; if it be recent, then the decision depends upon the doctor's bias: an optimist will pronounce her healthy, a pessimist will send her to the hospital. It is in the settlement of this question that the gonococcus promises to be of service. In four years Carry has made 327 examinations of 278 women having suspicious discharges. In ninety-four examinations of eighty-seven women he found the gonococcus, that is, in about a third. He concludes that the chances are about one in three that a muco-purulent discharge from the female genitals is gonorrhœal. Without the microscope it is not possible to pronounce on the nature of a discharge; naked eye evidence is presumptive, not certain. The gonococcus is most frequently found in the urethra. Carry has examined girls accused of having communicated gonorrhœa, and found the mucous membrane apparently healthy, and been unable either with finger or speculum to express any secretion from the urethra. He has then kept the patient waiting for an hour, not letting her pass water, and again examined; even then he has been unable to express fluid from the urethra, but on extracting secretion from it with a small blunt curette, he has found the gonococcus abundant. The next most frequent place is the cervix uteri. Gonococci are found in the secretion of this part in about one-fifth of the cases. Next to the cervix come the glands of Bartholin, then the peri-urethral follicles, then the vagina. Carry says that the rarity of vaginitis among prostitutes is surprising. Acute gonorrhœal vaginitis is a rare disease; a painful one, which makes the patient keep her bed, and brings her quickly to the hospital. He has seen it so acute that he has been unable to introduce the speculum. Chronic gonorrhœal vaginitis is also



rare. The gonococcus in the vagina is only a passing guest, easily dislodged by simple cleanliness. Carry quotes other observers, whose results agree with his, that the urethra and the cervix uteri are the common seats of gonorrhœa in the female.

Carry has tried various methods of identifying the gonococcus, and has succeeded in finding one that is rapid and sure. It takes at most two minutes to make the preparation, and one or two minutes to examine it. Press the urethra with finger or speculum to make a little fluid exude. Take it up for examination with a spatula or curette, first sterilised in the flame of a spirit lamp. Transfer it to a sterilised glass slide, cover it with a sterilised cover glass, so as to spread it out without pressure, then separate glass and cover. Now stain it. Carry prefers a saturated aqueous solution of methyl violet 5 B, made by Merck, Darmstadt. Alcoholic staining solutions throw down pigmented molecules of other kinds which mask the gonococci, and are therefore unsuitable. The aqueous solution can be kept sterile by using chloroform water and by renewing it from time to time. Methyl violet stains gonococci very dark; nuclei, less dark; protoplasm, lightly. Let two or three drops of the staining fluid fall on the prepared slide; it stains instantly. Wash it immediately for ten or fifteen seconds with water from a pipette. Replace the cover glass. Take up the excess of fluid with blotting-paper. The slide is now ready for examination.

There are two exceptional causes of failure. If the secretion consists almost entirely of epithelium, the stain will be removed if washed directly; it must remain two or three minutes before washing. If the secretion contains much fat, this must be removed by washing two or three times with ether, and letting the ether evaporate. This will take five or ten minutes.

A magnifying power of 500 diameters will show the cocci. They are found within the leucocytes, arranged in pairs; diplococci; all of about the same size—one  $\mu$  in diameter. They are hardly ever found in the nuclei. About one leucocyte in 100 will be found containing cocci; that is, eight or ten in a microscopic field. They are most abundant in the later stages when the secretion is scanty. They are easily identified by their shape (round), pigmentation, grouping, size, and uniformity. No other coccus resembles them in all these respects. Their presence proves the gonorrhœal origin of a discharge.

I pass from the vagina and urethra to the bladder, and bring to the attention of readers of the "Year-Book" what seems to be an easy way of seeing the interior of the bladder.

The author's statements have since been endorsed by a contributor to the *Edinburgh Medical Journal*.

### **25. Visual inspection of the female bladder.**

Howard A. Kelly has given much trouble to improving the method of visual inspection of the female bladder. Two papers by him are published in the *American Journal of Obstetrics*, the first in the January, the second in the July number, 1894. The first enters into the whole subject, and describes what is to be seen; the second describes some improvements in the instruments, and summarises the mode of using them. "The vulvar orifice, especially the urethra, is carefully cleansed with a warm boric acid solution and cotton, to obviate any risk of infection of the urinary tract, which might easily be brought about by successively introducing instruments through an unclean urethral orifice into the bladder. The calibrator is then used to measure the diameter of the meatus" (this seems to me unnecessary). "Successive sizes of dilators are used till the urethra is dilated up to No. 10." (That is, a dilator measuring 10 millimetres =  $\frac{2}{5}$  inch in diameter.) "This can be accomplished without pain by twisting absorbent cotton on an applicator and saturating it with a 5 per cent. solution of cocaine, and laying it just within the urethra for five minutes before dilating. . . . Quite often the No. 10 can be introduced at once with ease without any dilatation. The bladder is now catheterised, unless the patient has urinated immediately before the examination. A pledget of sterilised cotton is now placed between the labia over the urethra, to protect the latter from contamination during the change of posture, and the patient is placed in the knee face position, which I almost invariably prefer for first examinations. The speculum (this is a simple tube, fitted with a wooden plug, and carefully bevelled at the end so that there may be no shoulder where it meets the plug. It has a funnel-shaped mouth, provided with a handle three inches long) is grasped in the right hand while the left holds the labia apart, and the cotton is removed, exposing the urethra. The speculum is held between the tips of the fingers and the thumb, the ring and middle fingers resting on the under side of the handle, and the index under the opposite side of the funnel-shaped orifice, while the thumb pushes the handle of the obturator firmly into the speculum, preventing the obturator from being forced up into the speculum as it is pushed through the urethra. Thus firmly held . . . the speculum is pushed on through the urethra into the bladder. If the patient cannot well remain as long as desired in the knee face position, its advantages may often be secured, by first placing her for a short time in that position,

until the viscera gravitate out of the pelvis towards the diaphragm, and introducing a catheter into the bladder, which at once fills with air. The catheter is now withdrawn, and the patient gently returned to the dorsal position, with more or less elevated hips. Upon introducing the speculum the bladder will now be found distended with air, and will remain distended until the viscera again gravitate into the pelvis. This will not occur for a long time in some cases, and can be prevented as long as desired by further elevating the hips." The examiner now puts on a head mirror. A light, electric lamp, or candle, in a dark room, is held close to the patient's symphysis pubis, so that the light can be easily caught by the head mirror, and reflected into the bladder. By properly directing the reflected light all parts of its interior are accessible to a direct inspection. If a pool of urine remains in the bladder, it should be withdrawn by a simple suction apparatus. If the residuum is only a teaspoonful, it can be easily removed by little balls of absorbent cotton held by forceps. The posterior wall of the air-distended bladder lies from one to two inches from the anterior wall; and on it is visible a beautiful network of branching and anastomosing vessels. The veins are easily distinguished by their dark colour. By turning the speculum thirty degrees to one side or the other, and looking sharply, a ureteral orifice will be seen; jets of urine may be seen, or in pathological cases blood or pus. The ureteral orifices and their surroundings are not constant in their appearances; sometimes the orifice is a dimple, or little pit, or a round hole in a cushioned eminence, or a fine crack in the mucosa. The bladder mucosa is usually of a slightly deeper rose colour round the ureter; and in inflammation it appears deeply injected. The ureteral orifice, from the foreshortening of the base of the bladder, seems to lie nearer the urethra than would be anticipated. Kelly has his specula marked with a V; by introducing the speculum as far as this V and turning it so that one of the limbs of the V is in line with the axis of the body, the opposite ureter comes into view. The ureter found, it can easily be catheterised through the speculum.

The next papers I refer to give some information on a rare morbid condition of the vagina.

## **26. Congenital annular stricture of the vagina.**

Ostermann (*Zeit. f. Geb. und Gyn.*, Bd. xxviii., S. 384) gives a careful account of this rare condition, first described by Schroeder. He first enumerates the other causes of stricture of the vagina: ulceration, diphtheritic inflammation, injury during labour, either spontaneous or during operative delivery,



cauterisation, defective development, smallness, longitudinal septa, rigid hymen ; and points out how these differ from the congenital annular stricture. In the latter malformation the vagina seems to end in a cul-de-sac, in which is a small opening, which the examiner may take for the os uteri. When this opening is enlarged, there is found above it a further piece of vagina into which projects the os uteri. The septum is generally situated in the upper third of the vagina. In every other respect the genital organs are normal. Its chief importance is that while it does not hinder cohabitation or involve sterility, it yet obstructs delivery. In a woman not pregnant, it may give rise to difficulty in diagnosis. In the discussion in this paper, other cases were related, and **Olshausen** said that he did not think the condition was so rare as was supposed.

Some other cases will be found recorded by **Vineberg** (*Amer. Journ. of Obstetrics*, vol. xxx., p. 106) and **Verchère** (*Arch. de Tocol.*, 1894, p. 453).

I next quote a very radical proposal for the cure of a most distressing malady, with some criticisms upon it.

## **27. The operative treatment of pruritus vulvæ.**

**Sänger** (*Cent. f. Gyn.*, No. 7, 1894) writes an elaborate paper on this subject. He defines "pruritus vulvæ" as the name of the chief symptom of an inflammation of the cutaneous folds of the vulva (including the clitoris) which involves the sensitive nerve-endings. In support of this statement he refers to the researches of **Webster** (*Lab. Reports, R. Coll. Phys. Ed.*, vol. iii., 1891). He quotes also the descriptions given by **Breisky** and **Orthmann**, of the morbid anatomy of the disease to which the former has given the name of "kraurosis vulvæ," and in which pruritus is only present in a minority of cases. They did not find the nerve-endings implicated in the morbid process. **Sänger** says that herein is the difference between vulvitis pruriginosa and kraurosis vulvæ; in the former the nerve-endings are involved, in the latter not. Cases of kraurosis with pruritus are mixed forms, in which the morbid processes of both diseases are present.

The causes of vulvitis pruriginosa are various, but in severe cases the cause is almost invariably "exogenous." He does not believe in an "idiopathic" pruritus which is "a pure neurosis," dependent upon "unknown changes in the central nervous system."

The pruritus is due to local morbid changes which reach the nerve-endings. The tendency of the time is to look for a microbe as the cause. Microbes abound in every vulva, and yet pruritus is a rare disease. Diabetic pruritus has been put down to the growth of a parasite, but this is disputable. Pruritus connected

with urinary disorders, incontinence, irritable bladder, etc., has also been ascribed to microbes, and the cases are easy to understand.

Sänger's classification of the causes of pruritus is the following ;—

1. *Endogenous causes* : (1) Hæmatogenous diseases in which chemical poisons circulate in the blood—jaundice, uræmia, diabetes—which, if they do not cause pruritus, render the patient more likely to be affected by exogenous causes ; (2) fluxionary causes :—venous congestion from heart disease, pregnancy, retroflexion, uterine tumours ; (3) hæmatogenous skin diseases :—erythema, urticaria, herpes, some forms of eczema, pruritus senilis.

2. *Exogenous causes* : (1) Secretory-chemical : (a) increased secretion of vulvar glands, hyperhidrosis, seborrhœa ; (b) moistening of the vulva with healthy or morbid urine ; (c) morbid secretions of vulva, vagina or uterus, as in gonorrhœa, leucorrhœa, cervical polypus, cancer, breaking-down tumours, altered blood ; (d) extension to the vulva of pruritus ani from morbid secretions in the rectum. These secretions, either by their own qualities or by the products of their decomposition, and especially in women with delicate skins, in the uncleanly and the fat, cause maceration and desquamation of the epithelium, with erythema, intertrigo, excoriations and erosions, eczema, and lead to the worst forms of vulvitis pruriginosa. They may be combined with certain endogenous causes, neurasthenia, hysteria, immoderate sexual excitement. (2) *Parasitic causes* : (a) animal : pediculi, oxyurides ; (b) vegetable : the various micrococci and fungi.

3. *Mechanical causes* : (a) Primary : masturbation, excessive washing and rubbing, the use of unclean sponges ; (b) secondary : the scratching and rubbing provoked by the pruritus, which may act not only mechanically, but by the introduction of micro-organisms which may cause abscesses, folliculitis, boils, etc.

4. *Thermic causes* : pruritus æstivus and hiemalis, the increase of pruritus by a warm bath or the warmth of bed.

The causes being so various, it is sometimes difficult to find out the true one. In most cases, if the cause can be found and removed, the disease is cured. But in some everything fails and a more effective treatment is wanted. This treatment Sängér thinks has been found in the operative removal of the diseased parts. He quotes cases in which this has been done by Carrard, Simpson, Schroeder, Löhlein, Rheinstadter, Fehling and Webster, with success. He relates two cases of his own. He excises the parts by making on each side an external incision from about an inch or an

inch and a half above the clitoris, running downwards about a line outside the labia majora, and ending near the anus. An internal incision is made on each side, starting from just below the clitoris, running down along the inside of the labia minora to join the lower end of the outer incision. The skin included between these incisions is dissected off, and the sides of the raw surface brought together by silver sutures. The posterior part of the vulva is removed by an operation much like that for incomplete rupture of the perineum. He has found the results good. He urges that this is a legitimate operation in chronic incurable vulvitis pruriginosa; that there is no reason against, and good reason for, removing the clitoris in the case of elderly women, and in cases in which the whole vulva is affected. In young women in whom the pruritus is limited to certain parts in which a morbid change is visible, the excision of the diseased part only should be first tried.

**28. Schultze** (*Cent. für Gyn.*, 1894, No. 12) is induced by Säger's paper to express his opinion that there are cases of pruritus not due to vulvitis; some due to other causes; some in which the cause is unknown. These cases, although not originally due to vulvitis, may become complicated with vulvitis from the scratching and rubbing which the pruritus provokes. There are cases in which no physical sign of disease whatever can be found to sight. Neither contact, firm or slight pressure, pulling this or that way with the sound, diffused pressure, or touching with a fine point, nor thermic stimuli produce either irritation or pain. In such cases, the pruritus is a pure neurosis. In other cases it is due to endometritis. In some of these it is because the discharge irritates the vulva. But there are cases in which there is little or no discharge, the pruritus persists in spite of the most careful washing away of all discharge, and it is at once cured by curing the endometritis. In such cases, Schultze has observed that when the endometrium was touched with the sound the patient volunteered the information that the itching was produced; he therefore regards it as a reflex symptom. He advises, when a patient complains of sleeplessness, not to forget to inquire about pruritus, which patients are often reluctant to mention. He admits that through rubbing the vulva to relieve itching the patient may fall into the practice of masturbation; and also, that a patient may euphemistically call masturbation "relieving irritation;" yet, that in most cases, the rubbing the vulva to relieve irritation has nothing whatever to do with sexual feeling; the rubbing removes the itching, but produces pain: he thinks it important for young practitioners to bear this in mind.



## IV.—FUNCTIONAL DISORDERS.

Textbooks have for long contained statements copied from book to book, about the effects of chronic heart disease upon the reproductive organs in women. But I know of no writer whose statements on this subject are based on inquiry according to scientific method. I am able now to point to a paper in which this has been done.

**29. The relation of heart disease to menstruation.**

Gow (*Obst. Trans.*, vol. xxxvi.) has demonstrated the following facts. There is no evidence that disease of the heart ever causes severe menorrhagia. If it has any effect at all, it either causes amenorrhœa or scanty menstruation. It leads to relative sterility, and produces a tendency to abortion. Numbers of women with valvular disease of the heart pass safely through pregnancy and labour.

**30. The association of surface tenderness with visceral disease.**

Henry Head has published (*Brain*, Spring and Summer No., 1893) an investigation which, although only indirectly bearing upon gynæcology, yet seems to me to bring the promise, when applied, of enormous improvement in that branch of medicine.

No class of cases has been a greater opprobrium to medicine than that of those diseases peculiar to women, of which the manifestation is *pain*. Nervous women suffering pain have often described their pains in inexact and exaggerated language. Hence doctors have often treated the uterus on account of symptoms with which that organ had nothing to do, and treated for long periods and in multiple ways patients whom they never would have treated at all could they have measured pain as accurately as temperature.

Matthews Duncan used to say that the great need of medicine was an "odynometer:" a measurer of pain. This we have not yet got. But if Head's statements are free from error, he has given us a means of identifying the *kind* of pain from which a patient suffers, independent of her often vague descriptions; and a means of distinguishing between genuine pain and pain which is merely the expression of a patient's wish for sympathy. This is a great thing; a great step towards precision in minor gynæcology.

Head's discovery is this: that painful visceral disease is attended with areas of cutaneous tenderness. These areas are not variable in their seat. With each organ the patch of skin which is tender is that supplied by the same spinal

posterior nerve-root as supplies sensory nerves to the viscus. Hence, by mapping out the cutaneous tenderness we can accurately infer the organ which is the seat of pain.

As my business here is only with diseases peculiar to women, I can only quote those parts of Head's paper which help in the diagnosis of those ailments.

**Ovarian pain** is accompanied with cutaneous tenderness over the area supplied with sensory fibres from the tenth dorsal nerve root. This area is limited above by a line running horizontally from the top of the first lumbar spine to the umbilicus; below by a line running from the third lumbar spine to midway between the pubes and umbilicus, but having a little downward tag near the anterior superior iliac spine.

**Pain due to the uterine body or the Fallopian tubes** is accompanied by cutaneous tenderness over the tract of skin supplied by the eleventh and twelfth dorsal roots. This area is limited above by that described in the preceding paragraph as the lower boundary of the tenth dorsal area; below by a line starting a little below the top of the sacrum and running forwards to the symphysis, but having a dip down over the buttock, and another dip down over the front of the thigh.

**Pain due to the cervix uteri** is accompanied by cutaneous tenderness over the area supplied by the third and fourth sacral roots; that is, the lower part of the sacrum.

**Pain due to the peritoneum** differs from the kinds of pain above mentioned, in that it is not accompanied by cutaneous tenderness; there is no pain or pressure until the deeper structures are included in the pressure, and the tenderness is localised to the peritoneum; it may be all over the abdomen, but not over the ribs or the sacrum; there is no referred pain.

Disturbance in one organ thus produces pain and tenderness over certain definite areas only. But when the pain has remained localised for some time, the condition of the central nervous system becomes altered. The pain spreads; it becomes, to use Head's word, "generalised." This generalisation takes place in definite ways. (a) Sometimes pain on one side spreads to the opposite side. (b) Sometimes pain in one organ spreads to another closely related to it; thus pain in the uterus may spread to the breast. In women the area most easily affected by generalisation of pain is the tenth dorsal (ovarian), next to that the sixth dorsal (inframammary), and next the seventh dorsal (ensiform). Head has observed the gradual generalisation of pain during painful menstruation, and in males during tonsillitis.

It is scarcely possible to exaggerate the importance of Head's paper from a gynæcological point of view. I have tested his statements, and found that in some intelligent patients they held good ; but I have not applied them yet in a large enough number of cases to have formed a judgment from experience of their diagnostic value. The cutaneous tenderness is ascertained by touching the skin with the head of a pin ; over the tender areas the patient says that this hurts her. There are two things which at first detract from their usefulness in practice : 1. Some patients contradict themselves, at one moment saying that they feel pain, and the next moment not, over the same spot. 2. Patients who complain of pain, and come to be treated for it, will often select for coming to their doctor a day on which their pain is better than usual, and then the cutaneous tenderness is not found.



# MIDWIFERY.

By M. HANDFIELD-JONES, M.D. (LOND.).

*Obstetric Physician to St. Mary's Hospital.*

## I.—THE PHYSIOLOGY OF PREGNANCY.

The following paper is of interest inasmuch as it bears on the question of septic infection after delivery. It has been asserted that during the first four or five days after a confinement no microbes are found in the lower vagina, but that later these organisms abound in the lower passage, and may even extend upwards to the uterus. If this be the case, rigid asepsis of the vaginal canal after parturition becomes of importance.

**Stroganoff** (*Centralbl. f. Gynäk.*, No. 40, 1893), working under **Ott**, examined the genital canal in a series of menstruating subjects, old women, pregnant women, and patients who had aborted. The vagina, he found, contains microbes throughout life, infancy included; these germs are usually bacilli, but other forms are detected, especially in disease. The vaginal secretion is at first slightly acid, and becomes more acid, but turns neutral or alkaline when alkaline secretions exist. In age it is faintly acid. The bacteria of the vagina produce an acid which kills the microbes. The cervical mucus is acid, and destroys microbes. **Stroganoff** examined forty-seven subjects to throw light on the question of the bacteriology of the cervix. In twenty-two no microbes were found in the cervix; sixteen were rejected, disease of the genital tract being detected. In the remainder only a very small number of germs existed. In short, the normal cervix is practically free from microbes.

**Klein**, of Franzenbad (*Wiener med. Presse*, No. 22, 1894), distinguishes a purely atonic condition of the uterus which may be entirely independent of any other morbid pelvic condition, or may be associated with another uterine disease, or may be the result of the latter. There are three morbid conditions with which the patient may begin sexual life, namely, defective development of the uterus, subevolution and developmental atony. The first condition, where uterus infantilis exists, is well known. In subevolution the uterus is anatomically well formed but histologically ill-developed; this condition is common in

weakly and phthisical subjects, and also occurs in fat though otherwise healthy girls. In developmental atony the uterus may be sound in form and structure, but the patient suffers from amenorrhœa or dysmenorrhœa, the sexual appetite is suppressed, and nervous symptoms, dyspepsia, etc., appear as the result of constitutional weakness, itself the cause of the atony. This same atony may follow any of the well-known inflammatory affections of the genital tract, and is a prominent result of superinvolution. It is important to diagnose atony from active disease, otherwise some more serious disorder may be set up by useless local surgical or therapeutical measures, and prolonged rest (including sexual rest in married women) increases both the atony and the constitutional debility which causes it. After tonic treatment the atony often disappears, and the patient bears children.

**Braxton Hicks** (*Obstet. Soc. Lond. Transactions*, 1894) read a paper on intermittent contractions of uterine fibromata, and in pregnancy, in relation to diagnosis. He referred to previous papers by himself on uterine contractions during pregnancy, and on their value in the diagnosis of pregnancy, and other tumours complicating it and independent of it. He alluded to criticisms on the value of this sign, related a case where he observed contractions in a fibroid tumour of the uterus, and then considered the bearing of this occasional character of fibroids in diagnosis in the small percentage of cases where unusual symptoms cause doubt as to the existence of pregnancy. He called attention to the difference in sensation given by a fibroid, which still appears solid on relaxation, from that of a relaxed pregnant uterus in which the foetal parts may be felt. He also mentioned the differential diagnosis in the case of vesicular moles, and of hydramnios, and considered the greatest difficulty might occur when there was a cancerous mole, as the physical signs and the symptoms might all resemble those of fibroids. He showed how a normal pregnancy, when the uterus is constantly and firmly contracted, might be mistaken for a fibroid, even after repeated examinations. He then discussed the diagnosis in cases of fibromata complicating pregnancy; between an ovarian and a uterine tumour; hydronephrosis and a uterine tumour, and in extra-uterine gestation. He concluded that the sign may be used in a large majority of cases either as distinct proof or as corroboration of other signs, or in the differential diagnosis of abdominal tumours.

[It is not universally recognised that in the case of a greatly distended bladder, intermittent contractions quite like those observed in cases of soft myo-fibromata may be felt by the

observer's hand. The frequency of these contractions varies considerably in different subjects.—REPORTER.]

## II—THE PATHOLOGY OF PREGNANCY.

Vinay (*Arch. de Tocol. et de Gynéc.*, November, 1893) endeavours to prove that the early stages of valvular cardiac disease do not seriously complicate pregnancy, which, on the other hand, does not aggravate the heart affection. He publishes instructive tables of twenty-nine cases, with full clinical histories. The cardiac lesions were : Mitral incompetence, six cases ; mitral obstruction, eleven ; mitral incompetence with obstruction, seven ; aortic incompetence, one ; tricuspid incompetence, one ; complex (aortic and mitral) lesions, three ; thus, in eighteen out of twenty-nine cases there was mitral obstruction uncomplicated in eleven. Out of the twenty-nine cases the pregnancy involved no further mischief in eighteen. In two patients influenza occurred, yet both were delivered at term. One patient had symptoms of melancholia, and was delivered prematurely. In four there was marked œdema of the legs. Nearly all the twenty-nine had varicose veins. In only four was the complication serious, yet all recovered. In the first there was mitral obstruction, hæmoptysis, and dyspnœa ; in the second, twin pregnancy, obstruction, and great distress from weight of uterus, yet live twins were born at term, and one survived ; the third was troubled with palpitation and loss of breath on exertion, she was delivered at term ; in the fourth there was also twin pregnancy, as in the second, with much dyspnœa and asystolism, due to mitral incompetence and obstruction. The twins were delivered prematurely ; the mother was weak and feverish during the puerperium, yet she recovered. In only five of the whole twenty-nine cases was labour premature ; two of the five were twin pregnancies.

[All the evidence that at present has been collected from a study of cases of pregnancy complicated by cardiac disease tends to show that valvular mischief is of little importance provided the normal compensatory hypertrophy of pregnancy is present. On the other hand, in cases in which no valvular disease has existed, most alarming signs of cardiac failure may arise, especially in the later months of pregnancy, owing to the absence of the normal increase in the heart muscle.—REPORTER.]

Lehmann (*Berl. klin. Woch.*, June 25, 1894) showed before the Berlin Medical Society two typical examples of tuberculosis of the placenta. He observes that an organ containing as much



blood as the placenta ought to show the tuberculous lesion quite as readily as the liver and kidney do. In the second case the tuberculous foci were situated in the chorionic villi, that is, in the foetal portion of the placenta. The infant died ten days after birth without tubercle being actually found in the body. Such tuberculous lesions as occur in the bones and glands during childhood are better explained in this way than by aërial infection. The author has found placental tuberculosis in two out of three cases in which the mothers were affected with tuberculosis elsewhere. The changes in the placenta are so slight that they may easily be overlooked. The placenta should be cut in slices  $\frac{1}{2}$  centimetre thick, each part carefully examined and doubtful portions microscoped. **Hirschfeld and Schmorl** (*Epitome, Brit. Med. Journ.*, June 6, 1891, par. 505) found tubercle bacilli in the foetal liver without obvious tuberculous lesions there, in the case of a phthisical mother. In the first of the author's cases the tubercle, as might be expected, was found in the maternal portion of the placenta. The disease may spread to the foetal portion either by direct extension or by rupture into the intravillous spaces. Tubercle bacilli may be found, though sparsely, in these placental lesions.

**Neumann and Braun** (*Centralbl. f. Gynäk.*, No. 20, 1894) introduced a discussion on the subject of tetany in pregnancy, at the March meeting of the Vienna Obstetrical and Gynæcological Society. One case of Braun's was unique. A 9-para, aged 39, had suffered for five years from mollities, bearing five children during the illness. The disease always advanced during pregnancy and halted after each labour. In her last pregnancy tetany set in; she had never suffered from it before. The bone disease making rapid progress, Porro's operation was performed. Although immediately afterwards the mollities began to cease its advance, the tetany still remained, though it usually ceases after labour. It was slowly disappearing when the report was read. Braun's second case was in a woman, aged 28. In her second labour, at the seventh month, severe tetany occurred during each pain. The spasms were confined to the right arm. They ceased on the administration of morphine, and the labour ended normally. Neumann's first case was 37 years old. In the second half of her fifth pregnancy tetany occurred in the hands, and recurred at every succeeding pregnancy when quickening was first noticed. During her eleventh pregnancy, tetany attacked the hands, feet and muscles of the neck. At delivery the convulsions became severe at each pain, and also during the taking of a pain or massage of the uterus. Laryngeal spasm and cramps of

the diaphragm and muscles of the abdomen occurred. The tetany became less frequent when the labour pains ceased. In Neumann's second case the patient was 30. Tetany occurred in the last month of her first pregnancy in the hands. It recurred during child-bed after her third delivery ; in the three following pregnancies and labours it was not observed. In the seventh pregnancy it set in two months before labour, and became very severe during labour pains. There was much pain in the hands, the feet and eyelids were involved. After expulsion of the child the convulsions became less. *Post-partum* internal hæmorrhage occurred. The uterus was emptied of blood and the tampon applied ; these manipulations aggravated the tetany. The patient recovered, the tetany ceasing gradually during child-bed. The patient had mitral incompetence.

Braithwaite (*Brit. Med. Journ.*, Jan. 13, 1894) writing on acute anteflexion of the uterus in the later months of pregnancy, says : A case of pregnancy was sent to the Leeds Infirmary in September, 1892, with a letter from two medical men of experience, saying that they believed the case to be one of extra-uterine gestation. The patient was aged 34, and had had five children, the last two years ago. In April, 1892, the patient believed herself to be again pregnant. In July she began to bleed a little every day, but in small amount, and this hæmorrhage continued up to the time of her admission in September. There was a large rounded central abdominal tumour reaching half a finger's breadth above the umbilicus, and occupying the greater portion of the abdominal cavity below. Whether this was the womb or not, it clearly contained a living child, for its movements could be felt by the hand. Vaginal examination found a rounded swelling anteriorly, and the uterus apparently lying behind it, and with no continuity with it so far as the finger alone could ascertain. The finger, pressed up between the tumour and the cervix, did not arrive at any point of union. The uterus also seemed to be movable independently of the tumour to the moderate degree which its cramped position behind it admitted, for it was pressed against the sacrum. This, as it will be seen, turned out to be a mistake, but at the time it gave him this impression. The cervix was very dilatable, and he passed an index finger up, and at a height of about 2 inches reached the top of a very elongated cervix. The finger could then be turned forward into the cavity of the uterus, and the fœtal head, covered by the membranes, was felt. Labour came on the same day and was concluded satisfactorily.

He certainly thought on first examination that the child was

not in the uterine cavity. In the year 1888 he was associated with Mr. E. O. Croft, of Leeds, in a similar case.

Precisely the same condition was found as in the case already described, and much doubt existed whether the child was in the womb or not. The cervix, or the uterus, lay directly behind the tumour and parallel to it and no continuity, or but a doubtful one, between them could be detected. He dilated the cervix sufficiently to admit of the passage of the finger, which at the height of fully 2 inches reached a ledge anteriorly, over which it could be passed somewhat downwards and forwards into the uterine cavity. The ledge was formed by the angle between the cervix and body, and it was necessarily pressed downwards to admit of access to the uterine cavity. He ruptured the membranes, and the labour was completed the same evening or next morning by his friend, but it was difficult.

At the beginning of November, 1892, he admitted another case into the ward, precisely like the other cases related. It should be noticed that in these cases there was anteflexion only, and without more version than enough to draw the cervix upwards a little. Secondly, that the cervix was somewhat elongated and pressed between the body of the uterus and the sacrum. It was not carried up almost out of reach, as in the ordinary anteversion with pendulous belly, but it was a little elevated. Thirdly, all the cases were primiparæ, and, as might be expected, in none of them was there what is known as pendulous belly with separation with the recti muscles. Indeed, the two conditions—acute flexion and pendulous belly—are inconsistent with each other, for it is the absence of yielding in the abdominal walls which favours the flexion. Although there are many references to anteversion with pendulous belly, there are, as far as he can discover, only two cases of the condition which forms the subject of this paper on record. Matthews Duncan, in his *Diseases of Women* (1886, p. 397), says that in advanced pregnancy we have two kinds of anteversion: one, common pendulous belly, the other extremely rare; he adds, "I have seen only one case of it in a primipara." In this case the uterus was anteflexed, and could not be replaced as in common pendulous belly. It was, in Duncan's opinion, not displaced secondarily, but grew into this peculiar shape and position. A second reference to it is in the *American Journal of Obstetrics* (February, 1890, p. 156), in which a case is recorded as one of "dextro-torsion of the pregnant uterus simulating extra-uterine pregnancy." This case is precisely like those he has related, except that the body of the uterus fell to the right side instead of directly anteriorly. The



writer of this paper is W. H. Wenning, of Cincinnati. The case so exactly simulated extra-uterine gestation, that after numerous consultations and examinations, Wenning and his friends proceeded to abdominal section. On opening the body, Wenning says, to use his own words, "general surprise and consternation seized us all," for nothing was found but the pregnant uterus bent like a retort. Wenning made a complete search into the German literature of the subject, and he states that Küstner relates a similar case to his, except that the patient was in an earlier stage of pregnancy. Barnes, in his *Diseases of Women* (1873, pp. 671-672), observes:—"In some rare cases of early pregnancy, the fundus has been locked behind the symphysis pubis in complete anteversion, forming a counterpart to the retroversion of the gravid uterus." The anteflexion of the early months has, however, no direct connection with the present subject, which is the resemblance such cases in the later months have to extra-uterine gestation, and the difficulty of diagnosis. It is probable that this condition is more common than has been supposed, and its similarity to extra-uterine gestation must be remembered. In every case, however, of advanced or full term abdominal ectopic gestation which he has seen—and he has now operated upon six—the uterus lay in front of the sac containing the child, not behind it. This is a most important point in the diagnosis, but there can be no absolute certainty until the finger is passed up the dilated cervix.

Hehrer (*Archiv f. Gynäk.*, vol. xlv. pt. 3, 1894) tabulates fifty unpublished cases of hydatidiform mole. Previous abortions or local or general diseases seem to have no influence in these cases. In molar pregnancy, vomiting is not specially frequent, but debility is very common. Twenty of the cases had been obliged to keep in bed for some time; this is partly associated with the fact that hæmorrhages during pregnancy occurred in forty-one, severely in fourteen. In twenty there was abdominal pain, in fifteen œdema of the legs. Abortion occurred at the fourth month in fifteen cases, at the fifth in thirteen; only two were delivered at term, and only two aborted at the second month. In forty-five cases, labour was completed within twenty-four hours, and two-thirds were delivered in six hours. The pains were noted as "strong" in twenty-six cases, as "moderate" or "regular" in eleven; hence, "weak" pains are the exception. In rather more than half the cases severe flooding occurred during labour, sixteen of the patients fainting. In thirty-four cases expectant treatment proved sufficient. In two-thirds, the puerperium was normal and the recovery rapid. Amongst the rest

were cases of prolonged debility, fever, etc., and one became insane in the second week. There were no deaths. Sterility after molar pregnancy was by no means the rule in these fifty cases.

Vomiting is so frequently met with during the pregnant condition, and in its severest type leads to such disastrous consequences, that a series of accurate observations, such as are recorded in the following communication, cannot fail to be of interest to all medical practitioners. There has been too great a tendency, in the consideration of these cases, to ascribe the disease to one sole cause rather than to remember the influence of several factors in its production.

Arthur Giles (*Lond. Obstet. Soc. Trans.*, 1894) writes on the aetiology of the sickness of pregnancy from observations based on three hundred cases at the General Lying-in Hospital. He finds that:—1. One-third of pregnant women are free from sickness throughout pregnancy; 45 per cent. are free from sickness during the first three months. Hence absence of sickness cannot be regarded as of much weight in the early diagnosis of pregnancy.

2. When sickness occurs it begins in 70 per cent. of cases in the first month; a few begin in the second, third, and fourth months; the fifth and sixth are nearly free, and about 9 or 10 per cent. begin in the last three months. The duration varies from a few days to all through. Sickness is most frequent during the second month.

3. Sickness occurs rather more frequently in the last six months among single women, suggesting the influence of a mental factor, since pregnancy becomes certain during the last six months rather than the first three.

4. Between the ages of twenty and twenty-five sickness is least frequent; 90 per cent. of primiparæ over twenty-five suffer from sickness.

5. There is less sickness in the third than in other pregnancies; and the sickness that occurs, both in this and in later pregnancies, is frequently in the later months or throughout. In the first two pregnancies there is much more sickness in the first three months. Comparing primiparæ with multiparæ, sickness in the early or middle portion is more common among the former by 13 per cent. Sickness all through is more common in multiparæ by 9 per cent.

6. Sickness in the later period and throughout increases markedly with the weight of the child and placenta; but the sickness does not interfere with the child's nutrition.

7. Women who habitually menstruate painlessly and scantily

suffer much less from sickness than those who suffer much pain and lose abundantly. The degree of the pain has more influence than the quantity lost.

8. Generally speaking, scanty menstruation is associated with little or no pain; and profuse menstruation with more or less severe pain. Pain before the onset of the menstrual flow is more apt to be sacral, suprapubic pain being more frequent during the flow. Sacral is oftener severe than suprapubic pain.

Passing to the general consideration of the subject, Giles thinks that the vomiting of pregnancy is not physiological, and states that in one-third of all cases it does not occur. While many theories (Giles quotes ten) as to the causation have been advanced, none of them are satisfactory; they all assume one factor to be responsible for all cases. Three factors must be considered:—1. The increased nervous irritability. 2. A local peripheral source of irritation. 3. A ready efferent channel for nervous energy—the vagi. Increased nervous irritability, apart from a local disturbance, is able to cause vomiting; the same influence favours both eclampsia and mania. Hysteria is sometimes the cause of vomiting, when “moral” treatment may effect a cure when other means have been tried and failed to relieve. Age, race, climate, and class, exert their influence, probably through variations in nervous irritability.

When sickness occurs throughout pregnancy, it is general rather than local conditions which are the cause. The close association of early vomiting with certain types of menstruation, is difficult to explain. The local source of irritation may be present without causing vomiting, or it may take a leading part in its production. Cases of inflammation and flexions will fall into this category.

In the later months sickness is often more obviously due to mechanical conditions when there is a marked increase of vomiting; corresponding with the increased weight of child and placenta, or other causes producing undue distension of the uterus.

The vomiting of pregnancy is not due to one factor, but to the interaction of several. In a certain proportion of cases of sickness, both mild and severe, the causation is quite apart from pregnancy.

Vicarelli (*Prager med. Woch.*, No. 33, 1893) deals with the difficulties frequently encountered in establishing the diagnosis of a dead foetus, and then refers to those diseases in which acetonuria has been found, namely: conditions in which there is a rapid loss of tissue, accompanied by general cachexia. With a view to dis-



covering the existence or absence of acetone in pregnant women, the author examined the urine in thirty-nine such patients, finding the product only in one case, in which also a dead macerated foetus was born. A similar case being observed elsewhere, the urine of ninety-eight other patients in a lying-in hospital was subsequently examined for acetone, the methods employed being those of Lieben, Segal, and Reynolds. All three tests showed its presence in seven cases only, these patients all giving birth to dead foetuses. In two of these cases the substance was also found in the amniotic fluid, and in one in the expired air. The sum total is thus represented by 137 patients, of whom nine revealed acetonuria, and were also delivered of dead foetuses. Eleven further cases showed acetone by Lieben's method, which, however, gives a similar reaction with nineteen other bodies. The acetone always disappeared in the course of the first four days after delivery, and the author considers that in view of the above facts, and the hitherto published observations, acetone must be regarded as a retrograde product of albumen. The urine was always drawn off by means of the catheter, and those patients were excluded from these observations in whom symptoms of other maladies were present.

The two cases given below by Wheaton are certainly of interest as providing an explanation in some instances in which it has been difficult to account for *post-partum* hæmorrhage or septic manifestations. It would, however, be a mistake to suppose that uterus septus is such a very rare condition. In many cases in which it exists, repeated pregnancies pursue a perfectly normal course, and there is nothing to call attention to the morbid anatomy. In many cases which the Reporter has seen, the condition has never been suspected until the presence of a retained placenta, or the necessity for applying forceps, or the examination at an autopsy has revealed the abnormal condition. In the last case which came under his observation, the patient had passed through seven normal pregnancies, and it was only after death, due to puerperal eclampsia, that the divided condition of the uterus was observed.

**Wheaton** (*Lancet*, Dec., 1893) narrates two cases of uterus septus and discusses the effects of this condition upon labour.

*Case 1.*—A married woman, aged thirty-seven, was confined on February 14th, 1891, at the General Lying-in Hospital. Labour was natural, the child was living, and the placenta was expressed without difficulty. Fifteen minutes after delivery I was asked to see her on account of continued hæmorrhage and collapse, coming on after expression of the placenta. On putting the hand on the

abdomen I was at once struck by the peculiar shape of the uterus, the right half being much larger and reaching at least three inches higher in the abdomen than the left, and the fundus having a marked antero-posterior depression. On vaginal examination the finger impinged upon a median antero-posterior septum extending from within one inch of the os externum to the fundus. On the right side of this septum two fingers passed easily into a large cavity, from which some adherent membranes were removed; the placental site was examined, and was found to be situated partly upon the septum. On the left side the finger passed with difficulty into a long narrow cavity lined by thick soft decidual membrane, of which quite a handful was peeled off with the finger. There was no vaginal septum. The hæmorrhage ceased after the removal of the decidua, and the patient made a good recovery.

*Case 2.*—The patient was a married women, aged thirty-six. I was asked by Mr. Sutcliffe, of Clapham, to see this case. Labour having been very prolonged, he was called in to see her, applied the forceps, and extracted a living child with great difficulty; no abnormality had been noticed during the application of the forceps. Afterwards the uterus remained enlarged, and the temperature became high, varying between 103° and 100° F. until the sixteenth day after her confinement, when I saw her for the first time. At this time the fundus uteri was situated two inches above the level of the umbilicus, the left side extending much higher than the right, and there was a distinct antero-posterior depression at the fundus in the middle line. On examination, the finger passed within the os uteri and impinged upon the firm edge of an antero-posterior septum at the level of the internal os uteri, which extended to the fundus. There was no trace of a vaginal septum. On passing the whole hand into the vagina the finger could be introduced on the left side of the septum into a cavity two inches and a half in length, whose walls were rough; the placental site was found to be in this cavity and situated at the fundus, but no débris or clots remained. The finger was then withdrawn and passed with great difficulty on the right side of the septum into a cavity two inches long; this was found to be lined with soft decomposing decidua, which was peeled off with the finger. There was a very offensive discharge. Both cavities were washed out with iodine solution, and the patient recovered completely but slowly.

*Remarks.*—The first patient had had two children and one miscarriage; the second had had six children and one miscarriage. Neither had given birth to twins, nor had anything abnormal

been detected in their previous labours, although the first patient had always been confined in the hospital. On examination of the literature relating to this abnormality, after excluding doubtful cases and those of uterus bicornis, I can only find thirteen cases in which an account of the labour is given. Of these five died, viz., two from peritonitis due to decomposition of retained decidua in the unimpregnated half of the uterus, one from septic peritonitis, one from rupture of the uterus, and the fifth died undelivered, owing to the small size of the os uteri of the impregnated half. In four cases the placenta was retained and adherent, but recovery occurred, although one suffered from peritonitis. In two, frequent abortion occurred, with menstruation during pregnancy in one of these; and abortion occurring on one side, with pregnancy going on to term in the other half of the uterus, at another time. This is the only case in which twin pregnancy is recorded. In the remaining two cases, labour was always normal, although pregnancy occurred seven times in one and five times in the other. A vaginal septum was present in two cases only out of the thirteen. From this record it will be seen that the chief danger arising in connection with this malformation is that which was present in the two cases above recorded, namely, the retention of decidua in the unimpregnated half of the uterus and the resulting risk of decomposition and septic peritonitis. Next to this comes retention of the placenta and consequent *post-partum* hæmorrhage. It is curious that twin pregnancy should be so uncommon, and likewise abortion. Labour is not unusually prolonged as a rule. In one case menstruation was shown to occur from both sides of the uterus simultaneously. The rarity of the existence of a vaginal septum is also noteworthy.

**Tarnier** (*Journ. des Sages-Femmes*, March 16, 1894) had under observation a case of uterus septus, the patient being in her sixth pregnancy. The previous history was as follows:—First pregnancy, live child delivered at seventh month; it died in a few minutes. Second delivery at beginning of seventh month; child lived three months. Third delivery in seventh month; child is living. Fourth delivery at term; child lived six months. Fifth pregnancy (twins), abortion in the fourth month. The patient was sent into Tarnier's wards in the sixth month of her sixth pregnancy. Flooding had set in, and placenta prævia had been diagnosed. Vertex presentation was discovered, and the foetal heart sounds were audible. There was prolapsus vaginæ. A thick ridge ran down the anterior vaginal wall. A prominent swelling could be felt in the left fornix; it had been taken for placenta. On careful exploration a distinct opening was detected



in it; the finger could pass nearly one inch up this orifice, which was separated by a distinct septum from the dilated os of the pregnant half of the uterus. Next day a clot was expelled from the non-pregnant cavity, and its os rapidly contracted. The pregnancy continued. In short, the flooding was simply menstruation continuing in the non-pregnant half of the uterus. Tarnier suspects that many cases of menstruation continuing during pregnancy can be explained in this way. When the vagina is double as well as the uterus, diagnosis may be difficult. Tarnier was once called in by a colleague to a patient in labour. The cervix seemed like that of a non-pregnant uterus. At the consultation the vagina was found to be double, and a well-dilated cervix was discovered. The same observer has seen pregnancy alternately in the right and left half of a double uterus. The non-pregnant uterus appeared like a cyst. Twin pregnancy in one cavity and simultaneous pregnancy in both cavities of a double uterus have been recorded.

The next two papers bearing on the presence of albuminuria in connection with pregnancy are a valuable addition to our knowledge of the subject.

**Herman** (*Obstet. Society Trans.*, 1894) contributes a valuable paper on six more cases of pregnancy and labour with Bright's disease, of which the following is an abstract:—Case 1: Third pregnancy. Eclampsia with second labour and persistent subsequent albuminuria; third pregnancy beginning eleven months afterwards; œdema and short breath coming on in second month of pregnancy, arterial degeneration, cardiac hypertrophy, old retinitis, urine containing one-third albumen and casts, premature delivery at end of fifth month, no fits, slight diuresis following delivery, no marked diminution in albumen immediately following delivery, but some diminution following prolonged rest, percentage of urea much, and absolute quantity of urea somewhat, below the average, no marked alteration in urea percentage accompanying delivery. Death six months afterwards. Case 2: Tenth pregnancy. Ill twelve months before delivery; urine containing half albumen, polyuria, deficient urea elimination, bronchitis, no retinitis, labour induced in ninth month, death of child on delivery, persistence of bronchitis, diarrhœa, increased urea excretion and diminution of albuminuria following delivery, irregular slight pyrexia. Death a month afterwards; chronic tubal nephritis. Case 3; Fifth pregnancy. Bone disease followed by amputation of thigh eleven years previously; œdema dating from fourth labour four years previously, no other symptoms, anæmia, no retinitis, polyuria, urine containing half albumen, almost entirely serum-

albumen, slight diminution of albumen under milk diet, urea excretion only slightly below normal, labour induced at eight months, child living, diuresis, increase of urea elimination, and still greater diminution of albuminuria following delivery. Good health two years afterwards in spite of persistent albuminuria.

Case 4 : First pregnancy. Symptoms beginning towards end of seventh month ; no retinitis, urine containing two-thirds albumen and casts, labour induced at end of eighth month, increase of albuminuria during labour, progressive diminution during lying-in, slight deficiency of urea elimination, slight polyuria before delivery, diuresis following delivery, child living, piece of placenta retained and removed on the ninth day. Good health eleven months afterwards.

Case 5 : Second pregnancy. Symptoms three weeks before term ; vomiting, diarrhœa, œdema, labour at term, lingering first stage accelerated by bougie, child living, urine containing casts and a quarter albumen, increase of albuminuria to one-half during labour, diuresis after delivery, diminution of albuminuria during lying-in, slight diminution in urea excretion. Good health and freedom from albuminuria six months afterwards.

Case 6 : First pregnancy. Symptoms a week before admission ; œdema, weakness, short breath, cardiac hypertrophy, urine containing one-third albumen, labour induced at end of eighth month, child living, no fits, slight deficiency of urea elimination, diuresis, increased urea elimination and diminution of albuminuria following delivery. Good health a year and eight months afterwards.

Having thus briefly described the cases, Herman went on to compare the first with others reported in former communications by him to the society (in all, eleven in number), and then the eleven cases with twelve of puerperal eclampsia—also published by him in the Society's Transactions. From these comparisons he drew the general conclusion that there are at least two kinds of renal disease to which a pregnant woman is specially liable. One of these is a very acute disease, in which premonitory symptoms are either absent or of duration measurable by hours or days. It attacks chiefly primigravidæ. It often causes intra-uterine death of the child. It is attended with extreme diminution of the quantity of urine, and the small quantity of urine that is passed is greatly deficient in urea, but contains enough albumen to make it solid on boiling. This disease is accompanied with rapidly recurring fits. If it runs a favourable course the fits cease, then the urine increases in amount, and the percentage of urea therein rises. If the excretion of urea be not re-established, the case quickly ends fatally. Such cases seldom, if ever, pass into chronic Bright's disease. The

other is a disease which attacks older subjects, chiefly those who have previously had children. Its premonitory symptoms extend over a period of weeks or months. It often leads to intra-uterine death of the child. It is accompanied generally by increase in the quantity of urine with copious loss of albumen, but not so much in proportion to the urine as in the more acute disease, and with diminution in the elimination of urea, but not nearly so great a diminution as in the more acute disease. Delivery is followed by temporarily increased diuresis and increase in the urea elimination. When this increase is considerable, the albuminuria usually diminishes and disappears, and the patient gets well. When the increase is only slight, the albuminuria persists, and the case becomes one of chronic Bright's disease. This form of disease is sometimes attended with fits, but generally not. The presence of albuminuric retinitis affects the prognosis unfavourably. When the pressure within the abdomen is greater than usual, the amount of urine may be diminished, but in such cases the diuresis and the augmentation of the urea elimination after delivery are proportionately greater. In the acute disease which causes eclampsia, and in the chronic disease when it is associated with excessive intra-abdominal pressure, much of the albumen is paraglobulin. The cases in which the albumen is mainly serum-albumen, generally either die or pass into chronic Bright's disease.

Oui, of Bordeaux (*Archiv. de Tocol. et de Gynéc.*, December, 1893) observed twelve cases of albuminuria developed during pregnancy. In eleven of these cases the placenta was examined, and in six that structure was found diseased. Six out of the twelve children died, and no cause for their death besides the albuminuria and the placental lesions could be detected. In two cases where the mothers were submitted to strict treatment the children were saved; the six children who died were born of the remaining ten mothers. Three mothers died, the others were subjected in time to more or less careful dieting. Oui believes that when this treatment (milk diet) does not improve the patient's condition, it is advisable to induce premature labour to save the child.

### III.—EXTRA-UTERINE GESTATION.

Little advance has been made this year in the pathology or treatment of extra-uterine foetation, but the two following articles are of interest, the first as giving a clear and succinct description of tubal abortion, and the second as narrating a successful operation in the interstitial variety of the disease,



**Pilliet** (*Progrès Médical*, April 7, 1894) has studied two distinct cases of tubal abortion, and compared them with many other reported instances of this condition. The chief characteristic of tubal abortion is its incompleteness. After the destruction or expulsion of the fœtus, portions of the placenta remain attached to the tube and continue to develop. The same occurs in many cases of early uterine abortion, hence placental polypi or tumours—"placentoma" or "deciduoma"—develop. Dropsical hydatidiform chorionic villi, representing an abortion several years past, have been removed from the uterus with the curette. But the parasitic remains of the placenta are far more commonly seen, if not constant, after tubal abortion. In tubal gestation ending in abortion, small hæmorrhages set in, then a free show, corresponding to the expulsion of part of the ovum. Slight oozing follows, then the tube fills gradually, and at last another considerable loss of blood occurs. The presence of a piece of placental tissue explains this phenomenon; when, therefore, after a loss of blood resembling in clinical history an abortion, a tube remains enlarged and tender, and, when uterine hæmorrhages continue without complete return of the tube to its normal proportions, tubal gestation and incomplete abortion may be diagnosed. Hence an operation is indicated to anticipate the risks of intraperitoneal rupture. The persistence of portions of placenta after abortion appears easy to explain. At term the blood sinuses of the uterine tissue have widened and coalesced so as to form a single layer of blood between the maternal and the foetal structures; hence complete detachment of the placenta is easily effected. In abortion the above-named condition has not developed, detachment becoming more difficult. In tubal abortion the placenta becomes closely united to the tubal wall, which cannot undergo the complicated changes that occur in the uterine tissue in normal pregnancy.

**Lawson Tait** (*Lancet*, Jan. 13, 1894) records a case of interstitial tubal pregnancy successfully treated by abdominal section. The patient was thirty-eight years of age, had been married fifteen years, and had had four children, the last one three years ago. She had menstruated regularly and without trouble from the cessation of her last lactation up till July last, when her period went on for three weeks. Again, in August and September, it went on for five weeks, and after that she saw nothing. She was attacked with severe pain in the left side at the end of August, and noticed a lump in the left groin early in September, since which time the lump had grown and the pain had steadily increased. She had been confined to bed since the

beginning of September. When Lawson Tait saw her on October 22, she looked extremely ill, and a large mass occupied the pelvis and bulged up towards the left side. It fluctuated, and gave the impression of being embedded in the broad ligaments and as if the uterus were spread over the right side of it. The mass did not extend quite up to the umbilical level. The patient's skin was dry and rough, her tongue was foul, and her temperature was high, so that he diagnosed the case as one of suppurating cyst of the broad ligament and advised immediate operation. He opened the abdomen the next day, and as soon as he had entered the peritoneal cavity recognised the fact that the conditions were new to him. The tumour was certainly covered by uterine tissue, and, while the uterus could not be discovered independently, it became evident, from the normal relation of the uterine appendages on the right side and the abnormal position of those of the left, that the tumour consisted of an enlargement of the posterior and upper wall, for the left ovary and tube were raised up and brought quite forwards. He punctured the mass just behind the advanced left cornu, but nothing came through the trocar save a little putrid serum, very high-coloured. He therefore enlarged the opening with his fingers, and turned out a large quantity of offensive blood-clots with placental and foetal débris. He cleared a quantity of adherent placenta from the walls of the cavity, this proceeding being accompanied by severe hæmorrhage, which was controlled by sponge pressure. Passing his finger up the vagina to the cervix, he found that it could easily enter an enlarged but perfectly empty uterine cavity, and then he easily confirmed his suspicion that the case was really one of interstitial tubal pregnancy in which the foetus had died, and therefore the cyst had not ruptured. He washed out this cavity and the peritoneum with great care, and closed the wound with a glass tube reaching to the bottom of the cyst. The patient made an easy and uninterrupted recovery, and went home on Nov. 14th last. The interest of the case lies in the circumstance that, as one of interstitial tubal pregnancy, it is of great rarity, and it constitutes the first instance in which surgical assistance has anticipated the rupture and the patient's life has been saved.

#### IV.—OPERATIVE DELIVERY.

The following series of operative cases show how great is the success that has attended modern surgery with its Listerian precautions in some of the most formidable complications of

pregnancy. The time seems drawing appreciably nearer, when the performance of craniotomy in cases in which the child is living, will be held to be almost unjustifiable.

Wallich (*Ann. de Gynéc. et d'Obstét.*, Aug., 1894) publishes a case of symphysiotomy which he thinks shows the feasibility of the operation without special apparatus or skilled assistants. The patient a 5-para, aged 32, was rather below the medium height, and stout, with no history or physical signs of rickets. Her first pregnancy ended at term with a labour of twelve hours and delivery of a living child weighing 1,750 grammes; her second with a miscarriage at two months and a half; her third with full term spontaneous delivery of a living child weighing 2,250 grammes, after two-hours-and-a-half labour; her fourth with delivery by high forceps operation of a living child, weighing 3,300 grammes after forty-eight hours' labour. The present labour began on August 25, 1893, proceeded very slowly on the 26th, the dilatation having reached the size of a 5-franc piece at 7 a.m. of the 27th, when the membranes ruptured, the amniotic fluid being greenish and the head still above the brim, and showing no tendency to descend. At 11 a.m. Wallich was summoned, and found the patient very excited, but the pains still vigorous and the foetal heart-sounds good. The foetus was large, and presenting by the vertex with Naegele obliquity. The anterior aspect of the sacrum was accessible, but the foetal parts prevented the promontory being reached. While waiting for completion of dilatation the necessary instruments were sent for. At 2 p.m., dilatation being complete, the patient was placed in the obstetrical position on a chest of drawers. Two other practitioners, a midwife and the husband assisted, the latter holding one of the legs. The usual antiseptic precautions being observed and the patient having been anæsthetised, forceps were applied, though the head was still above the brim; but the operator, finding the first attempts did not promote descent, proceeded at once to the operation of symphysiotomy. Leaving the forceps in position, he divided the cartilage and subpubic ligament, separated the pubic bones 4 cm., and again attempted to extract; but as the head still resisted, he increased the separation to  $5\frac{1}{2}$  cm., when the head descended readily. The bones were approximated, while extraction was made through the soft parts. The child was living, and weighed 3,810 grammes. After extraction of the placenta and administration of an intra-uterine injection, the wound, which had meanwhile been stuffed with iodoform gauze, was sutured, and the pelvis encircled with a girdle of plaster of Paris held together with a strap. The patient was left on the chest of drawers for



the night, and removed to her bed the following day, when she was also able to pass urine spontaneously. Scrupulous cleanliness and antisepsis were observed throughout, the wound being dressed twice daily, and the external genitals douched after every micturition and action of the bowels. The deep stitches were removed on the eighth and the superficial on the ninth day; the plaster of Paris belt was removed on the thirteenth day, and on the twentieth the patient was able to get up, and walked without pain. She had been able to suckle her child from the first, and six weeks after the operation both were flourishing. The sacrosubpubic diameter was found to be 10·7 cm., the promontory being very high. The foetal head measurements were:—Biparietal, 9·4 cm.; bitemporal, 18·2; suboccipito-bregmatic, 9·9; suboccipito-frontal, 11·6; occipito-frontal, 12·1; occipito-mental, 14. The indications for the operation were the attitude (Naegele obliquity), the volume of the head and contraction of the pelvis. Persistence in the attempts with forceps it is thought would certainly have injured the child's skull.

**Cullingworth** (*Lancet*, Dec. 9, 1893) gives an account of two cases of Cæsarean Section at St. Thomas's Hospital, both mothers and both children being saved.

*Case 1.*—The patient had been pregnant seven times previously, the terminations of the pregnancies being craniotomy, or premature labour with no surviving child. She was rickety, aged thirty-one, with an estimated conjugate diameter of  $2\frac{5}{8}$  inches. She was now at the ninth month. Cæsarean Section was performed, the child being extracted before the uterus was brought out of the abdominal wound. The uterine wound was closed by six deep sutures followed by one half-deep suture between each two deep ones, the material used being silk. The uterus did not contract till after it had been replaced. The child weighed  $7\frac{3}{4}$  lbs. Both patients left the hospital well at the end of a month. The operation lasted 55 minutes.

*Case 2.*—The woman was small, with a pelvis contracted in all its dimensions. One previous pregnancy had been terminated by induced labour at the seventh month followed by craniotomy. She had had two early miscarriages. Labour appeared to have commenced twenty-one hours before admission. The uterus was very prominent, forming a ventral hernia. The os was fully dilated and the membranes were unruptured. Cæsarean Section was performed. The uterus owing to its prominence was brought out of the abdomen before extraction of the child. The uterine wound was sewn up by twelve deep and nine half-

deep silk ligatures. The uterus contracted well. The operation lasted 45 minutes. With the exception of a rise of temperature due to suppuration at the lower angle of the abdominal wound, she made an excellent recovery. The child, which weighed  $6\frac{3}{4}$  lbs., also did very well. Cullingworth remarks that in each case the operation was deliberately chosen and justified by the previous history. In Case 1 no means were taken to initiate labour. He does not think that the non-contraction of the uterus was due to this omission. Some vomiting and distension which occurred on the second and third days were probably due to delay in closing the abdomen. Cullingworth prefers to extract the child before bringing the uterus out of the abdomen. This method of suturing the uterine wound he considers to be the most satisfactory, as advocated by Dr. Howard Kelly.

**Robert P. Harris**, of Philadelphia (*Lancet*, May, 1894), publishes a short paper on the mortality of Cæsarean Section in Great Britain during the last eight years; that is to say, since the improvements characterising the modern operation were generally adopted. He has collected a total of sixty operations, the mortality of which was 32 per cent. In the twenty-two operations belonging to London in this list, the mortality was higher—viz., 40 per cent. Harris also gives the results in 100 Cæsarean Sections performed in the United States since 1882. There were thirty-eight deaths in this series. During last year there were in America sixteen operations with four deaths. The results, therefore, both in America and Great Britain are not dissimilar, and go to show that in both countries Cæsarean Section is still an operation attended with considerable danger. Harris further gives the results attending symphysiotomy, from which it appears that the mortality of Cæsarean Section in America is more than twice that of symphysiotomy. Inasmuch as modern symphysiotomy is relatively a much newer operation than the modern Cæsarean Section, some of the mortality of the former is no doubt due to the want of familiarity on the part of the operators with the technique of the operation. This also appears from the results of the later symphysiotomies in the United States, which, Harris tells us, show only a mortality of about 7 per cent. for symphysiotomy. Probably much of the reluctance to undertake this operation that prevails in England is due to a fear that lameness or crippling of the patient may possibly follow. On this point it is important to observe that Harris says there has been very little of anything of the kind known to follow the forty-four symphysiotomies that have been performed in the United States. It would be well, however, if he would, in some future communication, state

precisely as to each case what the result in this respect has been.

**Morisani** (*Annales de Gynécologie*, April, 1894) read an interesting paper on symphysiotomy in the section of obstetrics and gynæcology at the recent International Medical Congress. The limits within which he considers the operation indicated are, as regards the lower limit, a conjugate diameter not less than 67 mm. As regards the upper limit, it is generally given as 85 mm., but he considers that even with a conjugate of 95 mm. it may be indicated if the head of the fœtus cannot be made to engage in the brim by suitable means. The biparietal diameter may be taken as about 95 mm., though this may be reduced by moulding to about 90 mm. The total gain in the direction of the conjugate of the brim that may be obtained by symphysiotomy he gives as about 22 mm. Morisani incidentally expresses his opinion on version in cases where the pelvis is moderately contracted. He regards it with little favour, on the ground that even in normal pelves, delivery by version is attended with a considerable fœtal mortality, but that in narrow pelves this mortality becomes enormous, and, according to **Zweifel**, no less than 29 per cent. To return to symphysiotomy, when the fœtus is dead or its vitality gravely compromised, he considers the operation unjustifiable. In connection with this point it should not be forgotten how difficult it sometimes is to be certain that the fœtus is dead. In 1867, at a time when the mortality of Cæsarean Section was so high that, in Morisani's words, "to perform it was equivalent to signing the patient's death-warrant," **Jacolucci** proposed to combine the induction of premature labour with symphysiotomy in order to avoid having to perform Cæsarean Section. In consequence of the great diminution of the mortality of the latter operation since that date, Morisani no longer advises the combination of induction of labour with symphysiotomy for extreme cases. Flattened pelves with a conjugata vera of less than 67 mm., constitute the domain of Cæsarean Section. As regards the technique of the operation, Morisani recommends that the external incision should only be three to four centimetres long; he does not consider **Galbiati's** knife essential—a narrow, strong, blunt-pointed bistoury is equally good. He has not met with a case where the symphysis was ossified. It must not be considered to be so merely because difficulty is met with in dividing the articulation, for this may be due to its obliquity or the extreme narrowness of the cartilage. He refers to a case where, on this account, the joint could not be divided with a stout knife, but it was easily cut through by



using one of a thinner pattern. Partial section of the symphysis he rejects as useless. After symphysiotomy, if the operation is confined to suitable cases, the proportion between the pelvis and the foetal head is re-established, and if pains are good, delivery may be completed by the natural powers. As, however, for various reasons, there is frequently a tendency to uterine inertia, it is often necessary to apply the forceps. After delivery the approximation of the joint surfaces is sufficiently secured by bandaging and keeping the knees together. Morisani considers, with regard to the various objections that have been urged against symphysiotomy—such as that it occasions difficulty in walking, and the like—clinical experience warrants us in regarding them as of little account.

**Herman** (*Lancet*, Dec. 16, 1893) narrates six cases of Cæsarean Section, performed by himself at the London Hospital.

*Case I.*—Uterine fibroid obstructing delivery. Cæsarean Section in the fifth month of pregnancy—recovery. The patient, a primipara, aged 35, had previously suffered from menorrhagia. For six weeks there had been difficulty of micturition, and latterly the urine had been drawn off by a medical man. On examination a tumour was felt reaching to the umbilicus with a hard nodule on the top of the swelling. *Per vaginam*, the cervix was felt, softened, and pushed to the right by a rounded swelling behind it which was connected with the uterus. The diagnosis lay between a fibroid and extra-uterine gestation, there being other signs of pregnancy present. Attempts were made to induce labour by tents and a bougie without effect. She was then examined under an anæsthetic. The cervical canal was pressed forwards and elongated—so much so that it was thought to be the cavity of the uterus, the finger just reaching the upper boundary, and the tumour behind to be an extra-uterine gestation. Therefore, Cæsarean Section was performed, and the tumour found to be the enlarged uterus with several subserous fibroids, the largest being below and behind. The child was then removed, also both ovaries and tubes. The woman made a good recovery, except that one of the uterine sutures was discharged in the fifth week with some suppuration. Herman remarks that the error of diagnosis was instructive, but that the treatment carried out was the best for the patient.

*Case II.*—Rickety pelvis—operation in first stage of labour. The woman was twenty-four years of age, 4ft. 2½ in. high, and on examination the true conjugate diameter was judged to be two inches or less. The uterus reached to the ensiform cartilage, and she believed herself to be in labour at the full term at the time

of admission. Cæsarean Section was performed, and the operation presented no unusual difficulties. The Fallopian tube on each side was tied and divided. The child weighed five pounds. The lying-in period presented no unusual features and both patients left the hospital well.

*Case III.*—Flat rickety pelvis: operation early in first stage of labour induced one week before full term. This patient, aged 24, had had one previous pregnancy, which was ended by labour being induced at the end of the eighth month, and delivery by version and perforation of the aftercoming head. She was 5 ft.  $1\frac{1}{2}$  in. in height. The true conjugate diameter of her pelvis was  $2\frac{1}{2}$  inches. An elastic bougie was put into the uterus, and on the following day slight labour pains began. Cæsarean Section was then performed successfully. The child weighed  $7\frac{1}{4}$  lbs. The mother nursed her child from the beginning, and both went out well three weeks after the operation. The operation in this case lasted twenty-five minutes.

*Case IV.*—Rickety flat pelvis: operation after previous attempt at delivery by version and death of the child. The pelvis of this woman was markedly deformed, the true conjugate being  $1\frac{1}{4}$  inch. The attempt at delivery had been made in the patient's home; on her admission, the child's leg was peeling, and like the rest of the child, decomposing. Her temperature was  $101.4^{\circ}$  F. Cæsarean Section was performed, but the patient died thirty-six hours after with vomiting, pain, and high temperature. The cause of death, though a necropsy was refused, was doubtless septic poisoning and peritonitis.

*Case V.*—Uterine fibroid: operation at the eighth month of pregnancy. She had previously had difficulty of micturition. On admission, the uterus was reaching to the umbilicus. The cervix was high and to the right. The pelvic brim was almost filled by a hard, smooth tumour, which was diagnosed as a fibroid in the lower part of the uterine wall. She was in the fifth month of pregnancy. Delivery at term would have been impossible, and there would have been difficulty in emptying the uterus if labour had been induced at that time. Cæsarean Section at full term, with removal of ovaries to prevent a second pregnancy, was thought advisable, so she left the hospital. She was re-admitted two months later worn out with pain and sleeplessness, and with her abdomen greatly distended. Cæsarean Section was performed. An enormous amount of liquor amnii escaped. The foetus was small and died shortly afterwards. The woman died forty hours after the operation. There was no peritonitis or obvious cause of death. Herman thinks that death must be attributed to her

nervous energy having been previously exhausted, the febrile symptoms which she had after the operation being due to septicæmia.

*Case VI.*—Dwarfed rickety pelvis : operation in early stage of labour induced one week before full term. The patient was 3 ft. 6 in. high ; the true conjugate diameter of her pelvis being  $\frac{3}{4}$  in. Cæsarean Section was performed. The child was decomposing. The mother had some febrile symptoms afterwards, but left the hospital well. Herman remarks that the recent improvements in the performance of Cæsarean Section have so lessened its dangers, that it is now not always an operation of necessity, but sometimes of choice. The safety of the operation depends mainly upon (1) antiseptics ; (2) efficient suture ; (3) early performance. The essentials of the suture are (*a*) deep sutures holding enough tissue to bring the sides firmly together, but not going through the decidua ; (*b*) a suture that brings the peritoneum accurately together throughout the whole length of the wound. As Matthews Duncan showed, the peritoneum is the strongest part of the uterine wall. Herman in all his cases used a continuous button-hole suture. The continuous suture saves time, avoiding exposure and manipulation of the peritoneum. The ordinary continuous suture has the disadvantage of crossing the wound obliquely. Many stitches must be put in. The operation must not be postponed till the patient is exhausted. All Herman's patients who were in a good state of health at the time of operation recovered. He does not make a long incision and turn the uterus out of the abdomen before extracting the child, but by closely applying the abdominal walls to the uterus before and by pressing them together behind it after, the incision fluids are well kept out of the peritoneal cavity. He washes the uterus from time to time while it is being sutured. To sterilise his patients, Herman removes the tubes—loss of the ovaries carrying with it undesirable effects, though it is the only infallible method of sterilisation.

The two following papers bear upon the important question of induction of labour. In the present state of our knowledge two methods stand prominently forward. One is the use of the catheter passed between the uterine wall and the membranes, and the other is the application of Champetier de Ribes's bag. The latter is rather more difficult to insert, requires a certain degree of preliminary dilatation of the cervix, and needs some manual dexterity in its application, but it is more rapid and certain in its action, and is suitable in cases of urgency. The catheter on the other hand, though easier to insert, is more dilatory in its



action, though this objection may be overcome by supplementing its use with the injection of glycerine.

**Tarnier** (*Journ. des Sages-Femmes*, Oct. 16, 1893) declares that with antiseptic precautions induction of labour is absolutely free from danger to the mother. The dangers to the child are much lessened owing to artificial feeding, and the *couveuse*. Seven- and eight-months children are easily saved, and one-third of the six-months infants are now successfully reared. Tarnier admits that symphysiotomy gives more chance to the child, allowing pregnancy to proceed to term, but he adds that it entails unnecessary risks to the mother. The bougie is expeditious and generally safe as an agent for induction of labour. Before antiseptics it was a medium for the entrance of germs. Hence, it caused more disturbance and often acted quickly in consequence, but not rarely uterine disease or even death ensued. With antiseptic precautions it acts more slowly. The chief risk lies in the possibility of detachment of the placenta. Vaginal douches act slowly. Air, as is now well known, may be forced into the uterine vessels. **Depaul** once used the douche. The patient died during its application. He immediately performed Cæsarean section. Bubbles of air were seen in the blood in the uterine sinuses. Tarnier himself, when resident obstetric assistant at a hospital, had a case of sudden death during the administration of the douche. He found small holes in the posterior vaginal fornix. By experiments afterwards on the cadaver, he found that it is not difficult to perforate the fornix. Tarnier afterwards took to rubber dilating-bags, lubricated with glycerine, as oil and other lubricants made the bags liable to burst. He claims excellent results.

**Pelzer** (*Centralbl. f. Gynäk.*, No. 26, 1894) read a communication on the subject of glycerine injections as an oxytocic, at a recent meeting of the Cologne Obstetrical Society. He had collected twenty-eight cases, including nineteen in his own experience. Glycerine was used eighteen times for induction of premature labour; in fifteen of these cases the pelvis was narrowed, in two there was Bright's disease, and in one placenta prævia. To stimulate uterine action at term, glycerine was injected in seven cases of simple atony, in two of placenta prævia, and in one for some other complication. The pains came on after an average interval of two hours following the injection. Eight to ten hours elapsed before complete dilatation of the os, or a longer space of time in cases of contracted pelvis. Two of the mothers died, both from severe eclampsia; the fœtus was putrid in both cases. One child required craniotomy on account of its great size.

Three children died from placenta prævia and strangulation by the funis. One, hardly thirty-two weeks old, died a quarter of an hour after birth. Only in one case could the violence of the pains be a possible cause of the death of the child. The glycerine had done its duty. Pelzer, however, deprecates injudicious zeal about this method ; 30 to 50 cubic centimetres, not 100 cubic centimetres, are sufficient for injection. The method is not suitable for cases of eclampsia and placenta prævia, except the lateral variety, where the placenta can be avoided. **Gener** (*ibid.*) read notes of three cases of induction of premature labour by injection of glycerine, in all of which both mother and child were saved. The first two mothers were over 32, with contracted pelves ; craniotomy had been performed in previous labours. The third case was an instance of bad eclampsia ; 40 grammes of glycerine were injected, the os being at the time uncontracted ; there was œdema with much albuminuria. Forty hours later a healthy living child was born.

**Merz** (*Archiv f. Gynäk.*, vol. xlv., part 2, 1893) has published a monograph on the question of the treatment of rupture of the uterus ; it includes tables of 230 cases. The results are as follows :—(1) Without treatment, seventy cases of complete rupture, ten recovered ; twenty-one incomplete rupture, four recovered ; three doubtful as to completeness of rupture, all fatal ; (2) compression of abdomen by bandages, three complete, one recovered ; two incomplete, both recovered ; (3) tampon applied to uterine cavity, fifteen complete, six recovered ; ten incomplete, three recovered ; (4) drainage by tube, fourteen complete, eight recovered ; five incomplete, four recovered ; (5) drainage by skein of iodised thread, seven complete, six recovered ; one incomplete, recovered ; (6) simple drainage, washing out or irrigation, etc., being practised, six complete, four recovered ; one incomplete, recovered ; (7) laparotomy : (a) with suturing of uterus, twenty-four complete, ten recovered ; (b) without sutures, fifteen complete, eight recovered ; (c) Porro's operation : fifteen complete, eight recovered ; no incomplete ruptures are numbered under this head ; (8) a unique case, which recovered, where the placenta was extracted through the laceration, and drawn out of the peritoneal cavity through the uterus and delivered ; prolapse of omentum occurred ; (9) another successful unique case, complete laceration ; the edges of the wound were rubbed with a solution of perchloride of iron ; (10) treatment not clearly indicated in original reports ; ten complete, all fatal ; five incomplete, three recovered. Merz recommends that when the foetal head is still in the pelvis, the body lying in the peritoneum, the

child should be delivered with instruments. When the head, or the whole fœtus lies in the peritoneum, laparotomy is needed at once ; the laceration must be well sutured. When the child has been delivered naturally, laparotomy and suturing of the laceration must be done directly after birth. Where this is not practicable, drainage without preliminary irrigation must be carried out. Porro's operation is called for when the uterus is fatty, or when septic endometritis has set in.

## V.—THE PUERPERAL STATE.

Writing on intravenous injection of saline solution in cases of severe hæmorrhage, **Horrocks** (*Lond. Obstet. Soc. Trans.*, 1894) agrees with the late Dr. Wooldridge in thinking that the intravenous injection of blood or defibrinated blood is injurious. He has had several successful cases in which saline solution has been injected. His arguments are : (1) when a person is dead from rapid hæmorrhage, there is still in the body sufficient blood to carry on life if it can be circulated ; (2) theoretically half the volume of blood could do the same work if it were given double the velocity ; (3) death from hæmorrhage is due to failure of the heart, and this is due to want of extension owing to the fall in blood pressure ; (4) this blood pressure can be raised if as much fluid be transfused as there has been blood lost.

He quotes the results of experiments on two dogs, when both being bled till they ceased to breathe, one was transfused with saline solution, as large a quantity being injected as there had been blood lost, and recovered ; the other died. No patient should be allowed to die without this therapeutic agent being tried. In many cases of operation with much hæmorrhage, saline fluid injected into the veins would prevent those deaths from syncope which occur a few hours after. This might be done in spite of there being a pulse at the wrist. In seven cases brought forward by Horrocks, there had been no pulse distinguishable at the wrist. Four cases lived, and three, in one of which there was great delay before the injection was made, died ; of the other two fatal cases one died from peritonitis four days later, and the other from effusion of the blood into the left broad ligament. The patient has a much better chance if the bleeding vessels can be secured before the transfusion. The fluid used should be water. The addition of salt is not essential, but may be useful. The water should be boiled and then cooled to 39° C. It cools down to blood heat, 37·7° C., as it passes along the



apparatus. A teaspoonful of salt may be added to a pint of water. The amount of fluid injected should be equal to the amount of blood lost—two to six pints being necessary; the radial pulse will be distinctly felt when sufficient fluid has been injected. In the more moderate cases, each one must be judged on its merits, but when in doubt it is better to inject; many of these, however, will rally after copious rectal or subcutaneous injections. The apparatus used by Horrocks is simple, and consists of a canula, a glass funnel and a piece of tubing 3 or 4 feet long. A height of 3 feet is generally sufficient to cause a flow of about a pint in four minutes.

**Schreiber** (*Centralbl. f. Gynäk.*, No. 21, 1894) describes a case of puerperal acute atrophy of the liver which occurred in Pavloff's Wards in the Odessa Maternity. The patient was a soldier's wife, aged 22, in her second pregnancy. She was admitted in labour, in the eighth month. She was a stout and muscular woman, but intensely jaundiced and apathetic; the jaundice seemed to have begun five days previously. Labour only lasted seven hours, the cervix presenting. The child was alive, and the placenta and membranes followed five minutes after its expulsion. The patient complained of great tenderness in the region of the liver. The area of hepatic dulness was distinctly diminished, the spleen enlarged. The urine was acid, dark brown, very frothy when shaken, and contained bile but no albumen. The patient died on the fourth day after delivery. The secretion of urine had diminished steadily till complete anuria set in twenty-four hours before death. The temperature for two days ranged between  $99^{\circ}$  and  $100^{\circ}$ ; on the third it began to rise very high, and six hours before the patient's decease it was above  $106^{\circ}$ . There was evidence of old pulmonary tubercle. The liver was in size one-third less than normal; microscopic sections showed all the characteristics of acute yellow atrophy. The uterus had contracted well, its muscular tissue was tinged yellow, the cavity contained clot, and there were lacerations in the cervix.

**Boxall** (*Lond. Obstet. Soc. Trans.*, 1893) examines the relation of external meteorological conditions to the incidence of febrile illness in child-bed. He discusses the relation under two heads—those of mortality and morbidity—and bases the inquiry on statistical evidence, that for mortality being derived from the Registrar-General's Returns for London and from Professor Lusk's table for New York, and that for morbidity from the records of the General Lying-in Hospital. These statistics were graphically represented, and Boxall comes to the following

conclusions:—(1) The death-rate from puerperal fever is greater during the winter than during the summer months, and this holds good both for London and New York. (2) Septic illness in child-bed is more prevalent in the winter, and in this respect agrees with the mortality. (3) But septic illness, though more prevalent, is attended with less fever, and is therefore of less severity in the winter. (4) On the other hand, cases of febrile illness other than septicæmia, and pelvic inflammation in lying-in women are more prevalent during summer than winter. (5) As regards severity they evince no difference according to the season of the year. (6) Owing to the improvement which has been effected in the service of the hospital, the septic cases have since been so few, and of such slight intensity, that they have proved to be insufficient to neutralise the summer prevalence of non-septic cases. (7) It is pointed out that in the hospital patients are, by means of open windows and ventilators, more fully exposed to external meteorological conditions than is usual in obstetric practice generally; therefore, it may be inferred that if external meteorological conditions possess any direct influence upon the health of women after delivery, the effect would be apparent in these lying-in patients above all others.

Larny (*Arch. de Tocol. et de Gynéc.*, Nov., 1893) observes that three distinct forms of neuritis follow childbirth. First comes traumatic neuritis, the earliest recognised. It is, nevertheless, the rarest form. In nearly every case the forceps was used. Larny describes one example in his own experience. It was a difficult breech labour; the forceps was repeatedly applied; the patient felt severe "pins and needles" in the left leg; paraplegia most marked on the left side followed. The second form is puerperal neuritis by extension, that is, pelvic inflammation extending to nerves. The pathology of this variety is simple. The third form is very interesting and more subtle in character; the nerves of the upper as well as the lower extremity become involved. The disease is infectious; Möbius and Tuilant have recently shown that it is the homologue of the neuritis which follows erysipelas, typhoid, small-pox and other diseases. It is a parenchymatous peripheral neuritis of infectious nature. There is much clinical resemblance between infectious polyneuritis, and acute central myelitis. When the upper extremity is attacked, the median and ulnar nerve suffer most. Severe pain, which soon subsides, is an early symptom. The lower extremity suffers very much as in alcoholic paralysis. Puerperal neuritis usually ends in recovery of the affected muscles, but even when electricity is properly applied, cure may not be complete till the end of two years.

Prioleau (*Arch. de Tocol. et de Gynéc.*, Jan., 1894) concludes an important memoir on the subject of puerperalism and pre-existing microbism by insisting that there are certain inevitable forms of puerperal infection which defy rigorous antisepsis during labour and the puerperium. Infection is observed when the labour occurs in an infected or mephitic neighbourhood, when labour coincides with the development of an infectious disease, or when the patient has had old-standing lesions in or near the genital tract. The mechanism of this kind of infection is explained. Air, charged with noxious principles, enters the genital tract. The infected blood of the patient may bring germs to the placental wound in the uterus. Phagocytosis is weak when the blood is already infected; hence the germs develop rapidly on the wound. The primary infection is thus stimulated; an old genital lesion, abscess, etc., may be awakened or an old wound or lesion outside the vulva may set up infection in the uterine wound, just as a blood-lesion does when pre-existing. The practical inference from Prioleau's conclusions is that the genital tract must be kept thoroughly disinfected in all suspected cases where a source of inevitable infection is present.

Vinay (*Lyon Méd.*, Dec. 3, 1893) urges the value of the cold bath in cases of typhoid fever in pregnancy. It greatly lessens the maternal mortality, which is only 6 per cent., being 17 per cent. when the cold bath is not used. On the other hand, it does not greatly counteract the tendency to abortion, which occurs in 65 per cent. where the bath is not used, and in 55 per cent. where the patient is placed in the bath. The combined statistics of **Brand** and Vinay relating to the use of the cold bath in pregnant women include fifty-two cases; of these, twenty-eight aborted and three died. Of the five cases collected by Vinay at Lyons—that is very recently, under the most advanced improvements in obstetrics—none died, but three aborted. In typhoid fever of mild or medium type, abortion seldom increases the patient's danger appreciably; the contrary is the case in variola, pneumonia, cholera, and severe typhoid during the adynamic stage. Abortion is generally preceded by a rigor, a rise of temperature, and flooding, followed by a fall of temperature and labour pains. The flooding is serious if considerable; the temperature may fall to  $95^{\circ}$ , with dangerous collapse, even if no more blood is lost. The cold bath must be continued after abortion as long as the temperature keeps up. Typhoid fever is also little aggravated by delivery at term, but it is very dangerous when it actually develops in the puerperium. Out of eighteen cases collected by Vinay, nine, or 50 per cent., died.



Brand explains the mortality by delayed treatment owing to difficulties in diagnosis. Vinay maintains that the exhaustion, hæmorrhages, and traumatism inevitable at delivery, greatly influence for evil the incubation of the disease in these cases. The cold bath is here necessary, being contra-indicated only when there is general peritonitis.

**A. E. Giles** (*Brit. Med. Journ.*, July, 1894) read a paper on the temperature after delivery in relation to the duration of labour. He had analysed 600 cases of normal labour from this point of view. His conclusions were as follows: (1) The average rise of temperature due to labour is slight (average of 600 cases,  $98.7^{\circ}$ ), (2) the length of the first stage of labour bears a slight relation to the subsequent temperature; (3) the length of the second stage has a direct influence on the temperature, which rises in proportion to the length of this stage; (4) the time of day at which delivery takes place has very little influence on the temperature; this is, however, highest in the groups of cases where delivery occurred between 12 and 4 a.m., and between 4 and 8 p.m.; (5) when chloroform is given during the second stage of labour, the temperature is commonly low after delivery, even if the second stage last long: the average temperature in fifteen cases with a second stage averaging two hours and forty minutes was  $98.7^{\circ}$ ; (6) a similar result follows the application of forceps under chloroform: in twenty-six cases with a second stage lasting on an average three hours and a half, the average temperature was  $98.8^{\circ}$ ; (7) in twelve cases of natural delivery in which the second stage lasted on an average thirty-five minutes, but, where an intra-uterine douche was given, the average temperature afterwards was  $99.4^{\circ}$ . Tables and charts illustrating the principal points in the paper were exhibited. **Cullingworth** was glad to find that chloroform exercised no prejudicial influence upon the *post-partum* temperature. The President said that this paper of Giles's was the first attempt to reduce to law the minor temperature variations of the normal lying-in. These variations, although they might be in the present state of knowledge unimportant, because not leading to inferences useful in the management of the case, yet could not be fortuitous.

## VI.—THE INFANT.

**Chambrelent** (*Nouv. Arch. d'Obstét. et de Gynéc.*, Sept. 25, 1893) opened a discussion on the question of influenza and foetal death at a recent meeting of the Bordeaux Obstetrical Society. He was called to a woman in her eighth month of pregnancy; she

had suffered for a few days from fever, headache, colicky pain, and violent diarrhœa—evidently an attack of influenza which was then prevalent. The head presented. Labour occurred one week later; the patient declared that she never felt any movement of the child from the day that the colic set in. A dead macerated eight months' child was delivered; the patient speedily recovered. Her temperature had not been high, nor was there any hæmorrhagic area in the placenta. The degree of maceration corresponded to the time that had elapsed since the mother ceased to feel the fœtal movements. **Coyne** noted that violent diarrhœa wastes a great amount of serum, and so interferes with fœtal nutrition; this is seen in cholera, where the sounds of the fœtal heart cease long before the algid stage when diarrhœa is severe, though in the rare form where that symptom is absent, fœtal death more probably occurs in association with the asphyxia which marks the algid stage. **Moussous** had found that premature labour was frequent during influenza epidemics. In **Budin's** wards at Paris the increase of abortions in 1889 was very marked. **Hirigoyen**, on the other hand, had examined the health reports of Bordeaux for that year, and found that there had never been fewer premature births reported in that city. **Oui** was inclined to suspect simple poisoning of the fœtus by the virus of the epidemic as the cause of its death, and **Lefour** noted that there had been no investigation in Chambrelent's case which would justify the exclusion of syphilis or any other common cause of abortion.

**Budin** (*Rev. Gén. des Sciences*, Nos. 21 and 23, 1893) insists on the value of systematic weighing of infants as the best test of the condition of nutrition, and the relative value of different modes of feeding. Under any circumstances there is a loss of weight during the first two or three days of life, and this should be regarded as physiological, since the secretion of milk does not become established, as a rule, until the third day. It may be lessened by giving sterilised milk, and in weakly infants it may be desirable to do this. Contrasting the increase of weight in infants, (1) suckled, (2) partly suckled and partly fed artificially, and (3) fed artificially, it was found that during the first ten to twelve days of life, the average daily gain in weight was approximately twice as great in the first class (432 grains) as in the third (218 grains), while with the mixed diet the rate of increase was intermediate (278 grains). The number of infants in the third class, however, was very small as compared with the other two, and there was the further fallacy that with the third class there was some delay in beginning the artificial feeding

owing to the expectation that the secretion of milk would ultimately begin. When the first year of life is taken as the period of comparison, it is quite possible to get as rapid and steady an augmentation of weight with sterilised cow's milk as with human milk. The increase in weight may even be above the average. The quantity of milk given should be adjusted so as to lead to such a steady increase of weight as, speaking in round numbers, will lead to a doubling of the weight in the first five months, and its trebling in the first year. Failure in the quantity of the mother's milk will be shown by an arrest in the increment of weight, or by an actual decrease. This may be diverted into an increment by giving sterilised milk. Loss of weight accompanied by vomiting may, however, be an indication that the quantity of milk given is too large : thus an infant three weeks old, taking  $24\frac{1}{2}$  fluid ounces of milk, began to suffer from gastric disturbance ; the quantity was reduced to  $17\frac{1}{2}$  fluid ounces, the vomiting ceased in two days, and the weight began to increase again on the third day. After first employing sterilised milk diluted with water, Budin was led to employ sterilised milk undiluted, and with such good results that he now employs it exclusively. He sterilises the milk by raising it to  $212^{\circ}$  F., in what is, practically, a steam bath.

Prager (*Frauenarzt*, March, April and May, 1894), on scientific grounds and on the evidence of experience in private practice away from the conveniences of a hospital, concludes that Schultze's method is the best for resuscitating children born asphyxiated. The swinging of the child's body by the physician's hands properly placed on its shoulders is easily managed ; it ensures thorough ventilation of the lungs, restores the sinking circulation, and is the best method for ridding the air-passages of inspired mucus. He relates cases to show that the lungs can be filled even when the infant is lost. In the first case, a lingering neglected labour, the infant was too far gone to revive, yet the swinging (120 times) filled the lungs. In the second, where the child was probably dead at birth, the lungs were found well expanded. The third was certainly stillborn. It was swung an hour after birth. Not only were respiratory sounds heard, but at the twentieth swing mucus escaped from the mouth. At the necropsy the lungs were found fully expanded, though before the swinging there was universal dulness over the thorax. Two cases of revival are described. In the first the child was born deeply asphyxiated after extraction in breech labour. At the eighth swing mucus was expelled from the nostrils and mouth. Not till the seventeenth swing did inspiration begin, and as it



was weak the swinging was continued till the child breathed naturally. It recovered completely. The second case occurred in a head-presentation labour where the pelvis was narrow and turning performed. The head was delivered with difficulty, and the child was born astride the funis deeply asphyxiated. At once Prager applied Schultze's method. Mucus was expelled at the eighteenth swing. At the twentieth the child gasped for breath, and after the twenty-eighth respiration became regular. The child was reared. Thus this swinging method ensures the filling of the lungs with air, and the emptying of mucus even in the dead infant, whilst it rapidly restores a partially asphyxiated child. Hence it must give the best chance to a subject just on the point of death.

**Guéniot** (*Journ. des Sages-Femmes*, April 16, 1894) restricts the use of the *couveuse*. The cradle, kept warm by bottles, is sufficient to rear a child who is simply rather feeble or only a few weeks premature. The body of the child can with a fair amount of care be surrounded by a temperature ranging from  $95^{\circ}$  to  $98.5^{\circ}$ , whilst the whole air of a well-ventilated room is at the disposal of the infant's lungs. The falls of temperature in the room are never likely to be great or sudden. Above all, the infant can be taken out several times daily so that its limbs may be rubbed, this practice encouraging muscular contractions. Some slightly greasy application should be used to protect the skin against the dryness caused by heat. In the *couveuse* the child is too hot, its head as well as its body lying in a close atmosphere which it has to breathe. The skin gets too dry in spite of many precautions, nor can the child be taken out for friction of the limbs, as the difference in temperature inside and outside the apparatus is perilously high. The *couveuse* is needed only in the case of the infants of very poor persons, where there is no warm and healthy room in their dwellings and in hospitals, and lastly, in the case of very premature children, and infants markedly weak and two or three pounds below average weight.

**Semet** (*Thèse de Paris*, 1893, *Rev. des Mal. de l'Enfance*, April, 1894) observes that œdema neonatorum is sometimes confounded with sclerema neonatorum, though the pathology is quite distinct and the prognosis very different. The chief causes of the œdema appear to be feebleness of the right side of the heart, and insufficient action of the respiratory muscles. Owing to the feeble inspiratory movements thoracic aspiration is diminished, and this increases the distension of the chief veins already produced by the feebleness of the right side of the heart. The œdema commonly begins and is most marked in the lower limbs, the genital

organs and the lower part of the abdomen ; the upper limbs, the face, and the eyelids may be affected later, but occasionally they are the parts first attacked. The skin, at first pale, becomes red, and the face, if attacked, may even be cyanosed. The skin pits easily on pressure, unless the œdema is very extreme, and when extreme, the movements of the limbs may be embarrassed. The skin is cold and the surface temperature may be very low, though the axillary temperature, according to A. Robin, is not lower than the rectal, which is subnormal. The œdema appears commonly during the first three or four days of life, but may be delayed until the third month. It will be found usually that the child was born before full term and has been exposed to chills, or bad hygienic surroundings. Unless the œdema affects a very wide area, the prognosis is good and the chief points in treatment are warmth to the surface and good hygienic surroundings. In sclerema also there is feebleness, small pulse, low temperature and an alteration in the elasticity of the cutaneous structures, but the parts first affected are the back and shoulders and the skin is hard and tough, so that it cannot be pinched up, and does not pit on pressure. Sclerema is steadily progressive and movements of the affected parts are rendered impossible. When the face is affected, the child cannot suck and the only movements perceptible may be those of the thorax. The prognosis in sclerema is always bad.

# DISEASES OF THE SKIN.

BY MALCOLM MORRIS, F.R.C.S.ED.,

*Surgeon to the Skin Department, St. Mary's Hospital.*

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DURING the past year the dermatological world has not been stirred by any therapeutic discovery of importance. The diseases of the skin have had their full share of attention in the special sections devoted to them at the various congresses at Rome, Bristol, Breslau, and elsewhere ; but such progress as has been made in the province of treatment has been more the result of criticisms of old methods in the light of a larger experience, than of the introduction of new remedies. The work in fact has, to use a phrase of Bacon's, been *luciferum* rather than directly *fructiferum*, throwing a clearer light rather than adding new fruit to the store already gathered.

## **1. The thyroid treatment of skin diseases.**

The treatment of diseases of the skin by thyroid extract still claims the first place among recent additions to our therapeutical resources. There is considerable difference of opinion among dermatologists as to its value. Byrom Bramwell, to whom we owe the introduction of the method, is still fully convinced of its efficacy, though further experience has, as was to be expected, reduced his initial enthusiasm a degree or two. In the address which he delivered at the Inaugural Congress of the Dermatological Society of Great Britain and Ireland (*Brit. Journ. Derm.*, July, 1894), which is his most recent "confession of faith" on the subject, he gave the results of his experience of the treatment in various affections of the skin. For facility of reference, these are here summarised under different headings.

**Psoriasis.** A detailed account is given of twenty cases which he had personally treated by the thyroid extract. Of these only eighteen were reckoned as having been sufficiently long under treatment to have any statistical value. Of the eighteen, the treatment had been more or less successful in thirteen. The conclusions at which Byrom Bramwell has arrived relative to psoriasis are : (1) That in a very considerable proportion of



cases the thyroid treatment produces a temporary cure, the eruption entirely disappearing, and the skin being left in an absolutely healthy condition. (2) That in some exceptional cases rapid and immediate improvement is produced by small doses. (3) That in others, improvement is produced only after distinct symptoms of thyroidism have developed. (4) That in some obstinate cases the disease ultimately yields to the administration of very large doses, continued for a very long time. (5) That no case should be regarded as hopeless unless distinct symptoms of thyroidism have been produced, and the largest dose which the patient can take without being markedly upset has been continued after the production of distinct thyroidism for at least a couple of months. An increase of the pulse to 120 or even 130 he now regards as of little or no importance provided the tongue remains clean, the appetite good, and the temperature is not raised. Bramwell particularly emphasises the importance of large doses. (6) In some cases of psoriasis the thyroid extract seems to produce little or no benefit. In some cases in which the remedy failed the patients were epileptic or neurotic. (7) In many cases after apparent cure relapse occurs. Whether in cases of this kind the skin can be kept in a healthy condition by the continued use of small doses of the remedy, Bramwell's experience does not yet enable him to say. (8) So far as he can at present judge, old-standing chronic cases in which the skin lesions are stationary are, as a rule, more easily cured than recent ones. The total result of his experience is to show that thyroid extract given by the mouth "is the most valuable internal remedy yet discovered for the treatment of psoriasis."

**Lupus.** Byrom Bramwell has tried thyroid extract in five cases of lupus ; the results seem to him to show that the treatment is capable of producing considerable improvement in that disease. It must be continued for long periods of time, many months at least ; small doses must therefore be given, and the general health kept at the highest possible level. The patients should be kept in an equable temperature, and every cause of local irritation should be avoided.

**Ichthyosis.** He has tried thyroid extract in one typical case of ichthyosis, with the result that the ichthyotic overgrowth was gradually cleared off from the surface of the body. The improvement was however merely temporary, but Bramwell does not think it improbable that in some cases it may be possible to keep the disease in check by the persistent use of the remedy.

**Exfoliative Dermatitis.** In a very marked case of

exfoliative dermatitis in an old man, thyroid extract was given persistently for a considerable period of time and in pretty large doses (twelve tabloids daily), with no definite results.

**Acute Eczema.** The author has used the remedy in a few cases of eczema, but his experience is insufficient to enable him to make any definite statement as to its effect. He is inclined to think that in acute eczema it is likely to do more harm than good.

**Chronic Eczema.** He has given the thyroid extract in only two cases of chronic eczema. In one of these no benefit resulted, but in the other there was very marked improvement. He quoted cases treated by Macgregor of Dunfermline in which the remedy had produced most marked benefit.

**Pemphigus.** He had tried the remedy in one case of pemphigus, a slight one. After the exhibition of the drug no new bullæ formed, but this was probably a coincidence, and on *à priori* grounds he is disposed to think that in pemphigus the remedy is not likely to have a beneficial effect.

**Alopecia.** Thyroid extract was given in one case of alopecia universalis. In it a considerable growth of hair has taken place on the scalp since the treatment was commenced. "But," says the author, "the cases which can be cured by thyroid extract are probably the cases which can be cured by other means."

**Dose and mode of administration.** He always begins with small doses. In cases of psoriasis he gradually increases the dose until distinct symptoms of thyroidism are produced. In many cases the administration of large doses (thirty, forty, or even more, five-grain tabloids *per diem*) is all-important. The dry extract in the form of tabloids or palatinoids, seems to him the most active, elegant and convenient preparation. He invariably gives the remedy by the mouth. Subcutaneous injection has no advantages, and is not unattended with risk (sepsis). Except for economy, chemical preparations are always to be preferred to the fresh or partly-cooked gland. It is only in exceptional cases that internal remedies have been employed at the same time. When the stomach has been disordered, an occasional dose of rhubarb and soda, of calomel or grey powder has been administered. In one or two cases of psoriasis a few doses of exalgine have been prescribed when the itching was specially troublesome. In cases where marked depression was produced, quinine and strychnine, or nux vomica have sometimes been given as tonics. In the great majority of cases the diet has been unrestricted. In some a milk diet has been employed for a time,

in others sweet and red meats have been forbidden. In the more severe cases the patients have been kept in bed during great part of the treatment.

**Phineas Abraham** (*Brit. Med. Journ.*, Jan. 13, 1894) reported to the Medical Society of London the results of a trial of the thyroid treatment (Burroughs, Wellcome and Co.'s tabloids) in one hundred cases of skin disease. These included sixty-five cases of psoriasis, five of lichen planus, seven of eczema, two of chronic urticaria, five of lupus, one of prurigo senilis, and one of a peculiar papular eruption superficially resembling adenoma sebaceum. The usual dose was three tabloids in the day; if unpleasant symptoms were produced, this was reduced to, two or even one. Of the sixty-five cases of psoriasis, the author discards seventeen as having been under treatment or observation too short a time to be of value. Of the remaining forty-eight some definite improvement was noted in eighteen, but only seven of these were treated with thyroid alone. In sixteen the results as regards the eruption were practically negative; in fifteen there was an actual increase in the eruption during the administration of the remedy. In twenty-eight, disagreeable symptoms—headache, palpitations, muscular tremor, neuralgic pains, dyspepsia, etc., seemed to be produced by the remedy. Of the five cases of lichen planus, there was marked improvement in three, but in these also external treatment was employed at the same time. Of the seven cases of eczema, three, the author believes, derived benefit from the thyroid; but in these cases also other treatment was employed at the same time; in three cases unpleasant effects were produced. In neither of the two cases of chronic urticaria was the slightest beneficial effect observable; indeed, the trouble was rather aggravated. In the case of prurigo senilis the remedy did no good. The "anomalous papular eruption" began to diminish after the patient had taken some tabloids, but in this case also other treatment was employed at the same time. Two of the lupus cases showed improvement, but they were also under external treatment.

Abraham thinks the following conclusions may be drawn from his experience:

1. The ingestion of thyroid gland though of specific therapeutic value in myxœdema and sporadic cretinism has no constant effect in psoriasis and in many other diseases of the skin.
2. In a large number of cases the results are negative, and in a few the cutaneous lesions are aggravated.
3. In a certain number (a minority) there is a distinct and marked curative effect.
4. At the present time, there are no prior indications as to which cases



its administration is likely to benefit. 5. In a considerable number of the patients disagreeable constitutional effects are induced. 6. Age and sex have nothing to do with the success of the remedy. In future, Abraham intends to employ thyroid treatment only in cases which "hang fire" under the usual methods, or in those in which it may be physiologically indicated.

**G. T. Jackson** (*Journ. Gen. Urin. Dis.*, October, 1894) has tried thyroid feeding in five cases of skin affections, three of xeroderma, one of ichthyosis, and one of dermatitis exfoliativa. In all five cases the following untoward symptoms were observed—namely, headache more or less severe, and continuous even with a dosage of two grains of powder (Parke, Davis and Co.'s Desiccated Thyroid in capsules), intense erythema, nausea, vertigo, lassitude, rapid pulse, and sharp rise of temperature. The only evidence of favourable action of the remedy on the integument seen was increased scaling, moisture and suppleness of the skin. The author tabulates all the cases of thyroid feeding for skin disease which he could find recorded up to May 1st, 1894. They were thirty-three in number, nearly all English:

Psoriasis, 26 cases, 10 cured (1 relapse in one month), 7 improved, 9 no change.

Xeroderma 2 cases, both improved, scaling lessened and perspiration increased.

Eczema, chronic, 2 cases, 1 cured, 1 no change.

Lupus vulgaris, 2 cases, both improved. One has taken the drug more than a year.

Rosacea, 1 case, no change.

To these must be added Jackson's own five cases as follows:

Xeroderma, 3 cases, 2 improved.

Ichthyosis, 1 case, very slight improvement.

Dermatitis exfoliativa, 1 case, no change.

This makes a total of thirty-eight cases, of which eleven were cured, fourteen improved, while in thirteen no change was perceptible. The author adds, "When we remember how easy it is to see an improvement when we are looking for it, it is probable that we should discount the number reported 'improved.'" While admitting that from the few cases thus far published it would be foolish to draw conclusions, Jackson personally is not inclined to experiment further with this line of treatment. The therapeutic effects of the remedy are not sufficient in his opinion to counterbalance the distressing and grave symptoms which it is apt to produce.

**Gordon Dill** (*Lancet*, Jan. 6, 1894) reports five cases of

disease in which he used thyroid extract; four of these were cases of psoriasis mostly of an inveterate character. In three of them great improvement, amounting in one to practical cure, followed the administration of the remedy, and no unpleasant symptoms were produced. In one there was at first a decided improvement, but afterwards the disease again spread and the treatment had to be discontinued on account of the nausea and dyspepsia which it caused. In a case of acne rosacea, the remedy did little or no good except in somewhat lessening the redness.

**Tschernoguboff** (*Med. Obozrenië*, No. 22, 1893) tried thyroid juice in a case of psoriasis with the result that after seventeen days' administration of the drug (when the patient had taken in all three hundred grains), the process was much modified. The remedy, however, caused such disagreeable symptoms—pains in the limbs, weakness, palpitation—that it had to be discontinued.

**Leslie Phillips** (*Brit. Med. Journ.*, October 25, 1893) reports four cases of inveterate skin disease treated by feeding with sheep's thyroid. In two cases of old-standing psoriasis, the remedy had no effect; in a recent case it seemed to aggravate the scaling. The only case in which the treatment appeared to do good was one of xeroderma.

**Balfour Jones** (*ibid.*, December 30, 1893) reports a case in which the administration of the remedy was followed by symptoms not only disagreeable but dangerous. The patient, a man aged thirty-two, had suffered for ten years with psoriasis; he was given four tabloids, each containing  $3\frac{3}{4}$  grains of thyroid extract. This treatment was continued for five days without any ill effect. On the morning of the sixth day he awoke with palpitations, irregularity of the heart's action, and a sense of faintness. The psoriasis had become pale, and active desquamation had taken place. After a further very severe attack the following night, the remedy was discontinued for three days, when administration was again begun in a daily dose of three tabloids. Thirteen days later the pulse again became frequent, the temperature rose, there were night sweats and cerebral excitement. The patient had lost weight. During this time the disease had not receded, but new patches had developed on different parts of the body.

**Balmanno Squire** (*ibid.*, January 6, 1894) reports three cases of psoriasis treated with thyroid juice. The drug was pushed to the maximum doses beyond the limits of tolerance without any modification of the skin affection being produced.

**G. G. Stopford Taylor**, at the Dermatological Society of Great

Britain and Ireland on Oct. 11 (*Brit. Journ. Derm.*, November, 1894), in comparing the various methods of treating lupus vulgaris in use during the past twenty years, says that the patients who derived any benefit from the use of thyroidin were those in whom the disease was so far advanced and of such a character that active operative interference was either postponed or considered inadvisable. In two to whom it was given the effects were truly wonderful in stimulating ulceration and promoting the absorption of inflammatory products. The best results were obtained in a case in which acute thyroidism was produced. Thyroidin by itself is powerless to cure lupus, but it is a useful adjuvant in certain cases. From an experience gained in about a dozen cases, he formulates the following rules:—(1) Thyroid extract should never be given to hospital out-patients; (2) It is likely to be of benefit only in cases in which there is much chronic inflammation masking the disease, or where ulceration is taking place; (3) To obtain satisfactory results, acute thyroidism must be produced.

**W. Dale James** (*Brit. Journ. Derm.*, June, 1894) gives notes of a case in which a man of forty-five, "an old psoriatic," after taking four tabloids of thyroid extract daily, began to suffer from nervous symptoms, depression, palpitation, and flushings. After two weeks he complained of polydipsia, his urine was much increased in quantity, and acetone could be detected in his breath by its odour. The specific gravity of the urine was 1,032, and sugar was found at every test. He was placed on diabetic diet, and the administration of thyroid was stopped. In less than a month the sugar disappeared, and in six weeks the patient was entirely restored to health, except for his psoriasis, which was not in any way improved by the treatment.

[I have made a fairly extensive trial of the thyroid treatment. I have employed it in at least a dozen cases of psoriasis—in all of which the disease was severe, and had more or less defied other methods of treatment. In none of them did the remedy appear to do any good. No local treatment was used at the same time, and the patients were not kept in bed. In studying the effect of thyroid extract in psoriasis it seems to me that the experiments are vitiated by keeping the patients in bed, as this alone is often sufficient to bring about a marked improvement in the condition of the skin.

In lupus the effect of the treatment in my hands has been much more satisfactory. I have so far had the opportunity of trying it only in three cases. In one, the treatment had to be discontinued on account of the injurious effect which it had on



the patient's health, but the skin affection was favourably influenced. In the other two the action of the remedy was very beneficial after a time. One of these patients, an extremely scrofulous boy, has taken thyroid extract in small but repeated doses ever since April of the present year, and the improvement is well maintained.

In a case of old-standing dermatitis presenting several points of similarity with the premycotic stage of mycosis fungoides, the thyroid extract seemed to have a beneficial effect though it failed to effect a cure. The patient, a man of powerful frame and robust constitution, is so unpleasantly affected by the treatment that it is impossible to push the remedy.

On the whole, the evidence so far accumulated goes to show that, although thyroid extract in certain cases has a favourable influence on the nutrition of the skin, its effect is often slight and still more often transitory. Moreover, in estimating its therapeutic value, a large discount must be made for the constitutional disturbance with which its use in efficient doses is apt to be attended.]

## 2. Treatment of lupus.

Moreau, of Toulouse (*Semaine Médicale*, Nov. 22, 1893), has successfully treated lupus and certain other tuberculous affections of the skin by subcutaneous injections of a mixture of guaiacol and thymol, or guaiacol and aristol. The former was used in twenty-one cases, the latter in fourteen. The effects of both preparations are alike, but the one containing aristol causes more pain than the other. The mixture of guaiacol and thymol is therefore to be preferred.

The following is the formula :—

R	Thymol	...	...	...	...	2 grammes.
	Guaiacol	...	...	...	...	
	Sterilised olive oil	...	..	...	āā 50	„
	M.					

The injections are made twice a week, beginning with an injection of 1 gramme of the solution and gradually increasing the dose till after six injections a dose of 3 cubic centimetres is reached. These injections are followed by reaction both general and local, the general phenomena showing themselves first. The injections cause a good deal of pain, the temperature generally rises some fractions of a degree, and the pulse is slightly accelerated. Headache and sharp pain in the shoulder, almost always shooting down the arm and causing paresis lasting a minute or two, follow the injections. In cases in which there are pulmonary lesions there is reaction in the lung expressing itself

by intense and wide-spread congestion ; this may occur even when the lung is perfectly sound. The other organs, when healthy, exhibit no reaction. The urine never contains any trace of blood or albumen, and is normal in quantity. On the day of the injection the patients suffer from slight indisposition and drowsiness. Local reaction is at first very pronounced, but after the sixth or seventh injection there is a marked tendency to cicatrisation ; the patches become pale, the nodules shrink, the ulcerated glands heal rapidly. In carrying out the treatment care must be taken to introduce the needle first and to fit on the syringe only after making sure that no blood is flowing through it, so as to avoid the production of fatty embolism. The condition of the lungs must also be watched on account of the congestion which the injections produce ; so intense is this sometimes, even in healthy lungs, that in three cases Moreau was obliged to abandon the treatment. Equal care must be taken in the case of persons with heart disease, in whom the injections may bring on attacks of cardialgia and precordial oppression. It should be stated that, in addition to the injections, Moreau used local treatment consisting in the application to the patches of disease of a very fine thermo-cautery point in the manner recommended by **Besnier**.

**A. Elsenberg** (*Arch. für Derm. und Syph.*, Band xxviii. Heft I., 1894), at the suggestion of Nencki, has tried parachlorphenol in lupus. He states that a 2 per cent. solution of the substance is more powerful than a 5 per cent. solution of phenol, and much stronger than all the remedies of the aromatic series hitherto known. He uses it in the form of an ointment consisting of equal parts of lanolin, vaseline, starch and parachlorphenol, often with the addition of a small quantity of carbonate of potash. With regard to the frequency of the application, at first he used to wait from five to ten days until the reaction had completely subsided before again making the application ; now he does not allow so long an interval to elapse. The ointment is left on from ten to twelve hours, when it is removed with dry cotton wool. The diseased parts are then painted with salicylic or iodoform ointment ; two days later he uses the parachlorphenol again. After a few applications of the kind described, he generally uses salicylic soap plaster, or an indifferent ointment, for one or two weeks, till the reaction has completely ceased. The local changes produced by the parachlorphenol are as follows :—After a few seconds the lupus tissue, where the remedy has come directly in contact with it, becomes milk white. In a few hours this gives place to redness and swelling, and oozing of blood-stained serum takes place. In twelve to fourteen hours this ceases, and a thick

adherent scab is formed which separates in four or five days, leaving a smooth surface covered with epithelium. The author applied parachlorphenol to ulcerated lupus, both on the skin and on the mucous membrane of the nose and hard palate. Considerable reaction took place. Crusts formed, under which suppuration took place. In four to five days, when the crusts separated, a clean, healthy, granulating surface was left, which showed a tendency to cicatrise. The treatment causes a good deal of pain, but this is slighter in character and does not last so long as that caused by pyrogallic acid, etc. When used on the face, the remedy is apt to cause conjunctivitis and epiphora. Whether, after the use of a substance which causes such intense reaction, the remaining lupus tissue is still capable of infecting the neighbouring healthy tissue is yet uncertain, though the results of microscopic examination seem to exclude the possibility of this occurrence. The author states that although he has used parachlorphenol in the treatment of lupus for six months, he has yet no single case of complete cure to record. The favourable effect, however, is very marked, and the improvement goes on from week to week. The remedy brings about cicatrization of ulcers, destroys old nodules, and prevents the development of new ones. In this respect it is superior to pyrogallic acid, chloride of zinc, and other remedies used by the author. It causes no constitutional symptoms, and leaves no raw surfaces requiring after-treatment. The local effect is much the same as that of tuberculin, but without the dangers attending the use of that agent. A postscript is added to the effect that after several months' further experience with the remedy, the author is able to report one case of "almost complete cure" of lupus.

**Schütz** (*Arch. f. Derm. u. Syph.*, Bd. xxvi. Heft I., 1894) treats lupus vulgaris as follows :—After the administration of chloroform, all friable tissue is scraped away with the sharp spoon; then the floor of the wound and the borders, to a distance of one centimetre, are scarified. When the bleeding has been stopped, the wound is dabbed over several times with a cold saturated alcoholic solution of chloride of zinc, to which a little hydrochloric acid has been added. During the ensuing six hours sharp pain is felt, which may be mitigated by the application of iced compresses. Before twelve hours have passed, local swelling comes on, with œdema, more or less pronounced, of the neighbouring parts. Compresses of boric acid disperse this œdema in thirty-six hours, and cleanse the wound. For four days afterwards a dressing of pyrogallic acid (1 in 4) in vaseline is applied three times a day. Then boric acid compresses, frequently changed, are substituted for this



dressing. After five days of these compresses, the dressing of pyrogallie acid in vaseline is again resorted to, and continued for four days. Then boric compresses are applied again for three days ; lastly, a final application of pyrogallie acid and vaseline is made for two to three days. Cicatrisation is rapidly obtained by the use of iodoform in powder, or of boracic acid in vaseline. The duration of treatment is from  $2\frac{1}{2}$  to 3 months, and an excellent-looking scar is the result. Recurrence may take place at one or two points ; if so, the nodules must be scraped away with the sharp spoon, and chloride of zinc applied. The author claims that the results of this treatment are more satisfactory than those of any other plan known to him. The treatment is applicable to lupus of the skin. For that of mucous membrane in readily accessible parts, such as the gums and the uvula, Schütz recommends applications of a watery solution (20—30 per cent.) of chloride of zinc.

### 3. Treatment of ringworm.

In the *Journal of Cutaneous and Genito-urinary Diseases*, October, 1894, Brocq gives an account of the “first results” of a study of the best means of treating ringworm by Sabouraud, whose investigations into the nature of the fungus producing this disease have thrown a new light on the subject. In the tinea tonsurans having large spores and of animal origin, Martin and Sabouraud recommend that after washing and peripheral epilation, an application of tincture of iodine should be made every day, or every second day, according to the irritation of the patches ; over this is placed a layer of Vigo plaster. It appears that the results are better when the same piece of plaster is reapplied until it can no longer be used. In cases where the points of attack are extremely numerous, small, and scattered over the whole scalp, Sabouraud has employed with success iodised cotton, applied over the whole scalp in thick layers, and renewed every second day. In the tinea tonsurans having little spores (the Gruby-Sabouraud disease) Sabouraud has for some time employed an ointment containing carbonate of potash (pure) 5 to 10 grammes, distilled water and oil of sweet almonds each 5 grammes, vaseline 40 grammes. This is applied in alternation with tincture of iodine in the following manner:—The ointment is left on for twenty-four hours ; the head is then washed with soap and plenty of water, and the iodine then applied. As soon as the layer of iodine is dry, the ointment is reapplied for twenty-four hours, and so forth. In this way the diseased areas are cured with relative ease. At present Sabouraud prefers the following plan :—(1) Each night the diseased patch is

entirely covered with a tampon of absorbent cotton, wetted in the following solution: Chloride of lime 15 grammes, water 300 grammes (shake before using, and dilute one-half with water); cover with a piece of caoutchouc to keep the dressing in place. (2) The following day wash with soap, and cover with a piece of diachylon plaster. (3) Twice a week apply tincture of iodine to all the plaques. In the final stages of the tineas, when there are only a few hairs left in each patch which seem to resist all ordinary procedures, they may be destroyed either with the croton-oil pencil or by electrolysis.

Pottevin (*Ann. de Derm. et de Syph.*, July, 1894) has made trial of formic aldehyde for a year past in the Hôpital des Enfants Malades, and in the School of Ringworm Children in the Hôpital Saint Louis. The hair having been cut short, and the scalp having been thoroughly cleansed with soap, a compress of cotton wool soaked in a 2 per cent. solution of formic aldehyde is applied to the diseased parts, or, better still, over the whole scalp. The whole is then covered over with an indiarubber cap, or with a piece of oiled silk kept in place by a bandage. This compress is left on for twenty-four hours, then a fresh application is made in the same way, and so on. The dressing is suspended or applied weaker if there is any sign of irritation of the scalp. The treatment is in no way dangerous, and Pottevin has been able to continue it for three months without causing any unpleasant symptoms. In almost all cases the remedy failed to effect a cure, but the author claims to have had sufficient success to encourage him not to abandon the experiments.

At the meeting of the French Congress of Dermatology and Syphiligraphy, Du Castel, of Paris (*Semaine Médicale*, August 8, 1894), reported the results of clinical experiments continued over three years and including a total of 350 cases of ringworm. The method closely resembled, without being exactly the same, as that recommended by Unna. He used chrysarobin in pomades of a strength of 10, 20, and even 25 per cent.; he says, that in order to have any effect on the hair, an ointment must contain at least 5 per cent. of chrysarobin. His results were widely different from those recorded by Unna. Of the 350 cases, 14 per cent. were cured in one month, 11 per cent. in two, 7 per cent. in three, 43 per cent. in four to five, 15 per cent. in five to seven, 10 per cent. in over seven months. There are, he adds, ringworms which resist every form of treatment; differences in this respect are seen even in members of the same family. In the discussion which followed the reading of Du Castel's paper, Brocq said that, long ago, when taking the place of Besnier at Saint Louis, he used chrysarobin,

especially in the form of collodion in the treatment of ringworm, but never with success. Augagneur also had tried chrysophanic acid without result, and its application in the manner recommended by Unna had in his hands only caused suppuration. In his experience the best cure for ringworm was puberty.

#### 4. Treatment of favus.

F. Zinsser (*Archiv für Derm. u. Syph.*, Bd. xxix. Heft I. 1894) reports the results of some experiments made by him in Lesser's Clinic at Bern on the treatment of favus by heat. Experiments with the favus fungus proved that exposure to a temperature of 50° C. (122° F.) killed it in from four to eighteen hours. His clinical experiments were made on four cases. He first applied the heat by means of Leiter's coils placed over compresses wrung out of carbolic acid or sublimate solution. Finding the Leiter's coils inconvenient, however, he devised a special apparatus consisting of a double system of tin tubes so arranged as to lie close to the head from the vertex to the edge of the hairy scalp, whereby a uniform degree of heat could be applied to the whole surface. This helmet was applied to the head over compresses rung out of sublimate gauze; over the coils was placed a thick layer of cotton wool so as to retain the heat. The water in the kettle was at a temperature of 65 to 69° C. (about 150 to 157° F.) and in the passage through the tubes cooled down to 50 to 51° C. (122 to 124° F.). The heat apparatus is kept on uninterruptedly for twelve hours out of the twenty-four for a week or ten days. In three cases the result of the treatment was perfect and permanent cure. The fourth was an exceptionally severe case, and was an unfavourable one for treatment, as the hair was abnormally thick, bristly, and deep set in the skin. The author points out that the patients speedily become accustomed to the treatment; if the delivery and the return pipes are of sufficient length, they can readily move about, and children so treated are able to play in bed. When a sufficiently high temperature can be applied to the head to kill the fungi in the hair and in the follicles, it is possible to effect a radical cure in from eight to fourteen days. The author suggests that by the use of salicylic acid or potash in the compresses, the epithelium may be thinned so that the heat shall more readily reach the seat of the fungus; the greatest obstacle to the treatment is, he believes, the slight heat-conducting power of the hair.

#### 5. Treatment of xanthoma multiplex.

Leslie Roberts (*Brit. Journ. Derm.*, May, 1894) reports a case



in which great improvement was effected by painting the affected parts of the hands three or four times a day with the following lotion :

R	Acid. salicylici	...	...	...	...	...	3i.
	Liq. epispastici	...	...	...	...	...	m xv.
	Ol. ricini	...	...	...	...	...	3i.
	Æther. acetic.	...	...	...	...	... ad.	3i.
							m

After a time the following is substituted :

R	Acidi salicylici	...	...	...	...	...	3i.
	Chrysarobini	...	...	...	...	...	5ss.
	Ol. ricini...	...	...	...	...	...	5ss.
	Collod. flex.	...	...	...	...	... ad.	3j
							m f. sol.

Nearly eight months afterwards the patient was shown at the Liverpool Medical Institution, when "nodules were neither to be seen nor felt in the hands or fingers. The palms were soft and supple, and free from pain and tenderness on pressure."

## 6. Electricity in the treatment of skin disease.

**Oudin** (*Ann. de Derm. et de Syph.*, Aug.-Sept., 1894) has since October, 1892, tried the effect of currents of great frequency and high tension, without other treatment of any kind, in various affections of the skin, with results which he considers most encouraging. In eczema, acute and chronic, in psoriasis, in pruritus, in alopecia areata, the beneficial effects were not only rapid, but, to a large extent, permanent. Oudin thinks that in electricity applied in this manner we have a valuable addition to the therapeutics of the skin. He points out that there is no reason why other methods should not be used in combination with it. The currents are absolutely harmless and are well borne by the most sensitive and timid patients.

**Doumer** (*Arch. d'Électricité Méd.*, May, 1894) reports favourable results in eczema from the employment of the electric *souffle*. Of 50 cases 48 were completely and rapidly cured. The cases enumerated include both acute and chronic eczema, and the patients were of various ages. The author advises the use of a machine capable of giving sparks three inches long and an electrode with points for the breeze or brush discharge. Either the negative or the positive pole can be used, no difference in their action upon the complaint having been noticed.

**S. H. Monell** (*New York Med. Rec.*, Nov., 1893) has used static electricity in refractory skin affections of various forms with the greatest success. In a case of furunculosis of six

months' standing in which every other known remedy had failed, a cure was speedily effected by this agent. A case of painful zona was at once relieved by the same procedure, and a long-standing case of almost intolerable hyperæsthesia of the skin was practically cured in six weeks. In eczema the author claims results bordering on the marvellous. Thus, after a few sittings we are assured that moist eczemas dry up, and that chronic squamous indurated and thickened eczemas disappear. In pruriginous affections the treatment is said to be equally successful.

**Boisseau du Rocher** (*Journ. de Méd. de Paris*, Vol. vi., No. 6, 1894) claims to have effected marked improvement in a case of sclerodermia, in a woman aged 46, by electricity. The disease affected half the dorsum of the left foot, and was accompanied by severe facial neuralgia. The appearance of the patch of sclerodermia was preceded a year previously by local pain analogous to the existing neuralgia; this was succeeded by an enlarging white area. The local treatment adopted consisted in static electrical discharges of high potential and powerful delivery. The application produced a local burn, the patch becoming in a few minutes intensely red. On the following day some peeling was possible, but after a few sittings large flakes of skin were detachable. Healthy skin thus appeared, and the foot remains healed. Arsenic had been given but without success.

## **7. Dangers of naphthol as an application to the skin.**

**Baatz** (*Centralbl. f. inn. Med.*, Sept. 5, 1894) has seen acute nephritis follow friction with an ointment containing 2 per cent. of naphthol beta, in two brothers aged 6 and 8 respectively. The remedy was applied for scabies. This was cured, but three weeks afterwards albuminuria with œdema of the lower limbs came on. One of the boys died, and the diagnosis of nephritis was verified by *post-mortem* examination. In neither case had albuminuria previously existed, nor was there any history of an affection which could have been the starting-point of nephritis. The author therefore warns against the use of naphthol beta as a remedy for scabies, in spite of the powerful curative effect which it has on that disease.

## **8. Coal tar.**

**Leo Leistikow** (*Monatshefte für prakt. Derm.*, Band xix., No. 8, 1894) has used coal tar very extensively for several years, and prefers it in many respects to other species of tar. In his out-patient practice he generally uses it diluted with equal parts of

spirit. In private practice he finds the following tincture unobjectionable, both in point of smell and consistence :

R	Ol. lithanthracis	...	...	...	...	parts	3
	Spiritus 95°	...	...	...	...	"	2
	Æther. sulphuric.	...	...	...	...	"	1
M.							

When applied to the skin with a brush this dries quickly, and can easily be removed when required by means of a little olive oil. He has used this tincture in 200 cases, and has seen tar folliculitis only 12 times and tar poisoning (evidenced by deep black discoloration of the urine) only twice. The effect was in the majority of cases very satisfactory. The tincture was a much more powerful antipruritic than other preparations of tar, more energetic, more penetrating and more lasting in its effect, so that relapse was less common. It is not however adapted for cases in which the whole skin is involved ; in these it should be applied only to the worst places. The tincture is indicated : (1) In dry forms of eczema of the hairy scalp, breast, belly, back, nuchal region, genitals, extremities and navel. On the face, as it is apt to cause tar erythema, it should not be used in patients who are going about. (2) In psoriasis, especially in patches on the scalp, elbow and knee. Here a combination of it with chrysarobin is of special advantage. (3) In Hebra's prurigo. (4) In trichophytic affections.

### 9. Thiosinamin.

Mertens (*Vratch*, Nos. 12, 13, 14, 1894) has tried in twelve cases—10 of lupus and 2 of psoriasis—the effect of thiosinamin of which Hebra (see "Year-Book of Treatment," 1893, p. 389, and 1894, p. 379) speaks so highly. The results of the treatment in Mertens' hands have been very different from those of the Vienna dermatologist. For instance, in Mertens' experience the local reaction following the injection instead of being in inverse, was in direct, ratio to the intensity of the morbid process. The subjective sensations are giddiness and a feeling of heat all over the body. Not infrequently the injections cause pain. As regards the therapeutic effect, Mertens found that thiosinamin acted very slowly in lupus, and although it acted more rapidly in psoriasis, the cases being only two in number, could not furnish a basis for any deduction. The nodules of lupus developed rapidly, apparently under the influence of the treatment, and ulcerated. In all the cases treated by thiosinamin, the amount of urine passed in the twenty-four hours was increased. Mertens concludes that thiosinamin cannot cure lupus.



### 10. Pixol.

**Doukalsky** (*Semaine Médicale*, Aug. 8, 1894) has used pixol (a fir tar treated by soft soap and caustic potash, which makes it soluble in water) with good effect in certain affections of the skin. He paints a 10 to 13 per cent. watery solution of the substance two or three times a day over patches of psoriasis, soft chancres, and acute dermatitis caused by the too energetic use of mercurial inunctions and other medicinal applications. Under the influence of the pixol solution itching ceases almost instantly, and the inflammatory phenomena disappear in a few days.

### 11. Resorbin: a new excipient.

**Ledermann** (*Monatsh. f. prakt. Dermatologie*, Bd. xix., No. 2, July 15, 1894) gives the following details as to "resorbin," a new excipient introduced by himself. It is composed of purest almond oil, emulsified in a special apparatus with distilled water, with the addition of a small quantity of yellow wax, gelatine and soap. The final consistence is given to the preparation by the addition of a little lanolin. Being in a state of very fine molecular subdivision, it is claimed that it is specially adapted for penetration through the skin without the necessity of hard rubbing. A very slight friction suffices to complete the absorption of quite a large quantity, and with it any drug which may have been incorporated. It is indicated: (1) in those forms of dermatosis in which it is desired to get a large quantity of fat to penetrate through the epidermis, such as ichthyosis, the various forms of pityriasis, psoriasis and seborrhœic eczema, in scleroderma and sclerema neonatorum; also in artificial forms of dermatitis, especially those due to changes of temperature, with a tendency to œdema, ulceration and the formation of fissures; (2) as a vehicle it is indicated in the treatment of psoriasis with pyrogallol or chrysarobin, in that of lichen ruber with chrysarobin, in that of chronic eczema with tar, of prurigo with naphthol, and especially in that of scabies with naphthol and balsam of Peru; (3) as a means of introducing drugs into the organism, and especially in the application of mercury by the endermic method. Used as a 33½ per cent. mercurial emulsion, the drug is very rapidly absorbed by simply spreading a thin layer over the skin and making slight pressure for a short time. It is free from the unpleasant smell of other mercurial applications, but must be used with care owing to the extreme rapidity with which the drug is absorbed.

**F. Hahn**, of Bremen (*ibid.*), gives some particulars of cases (sycosis, pruritus vulvæ, etc.) in which he has used resorbin in

practice. He thinks it "a very good addition to our dermatological armamentarium," especially in the treatment of syphilitic affections of the skin.

## 12. Thioform.

A. Steuer (*Semaine Médicale*, Oct. 13, 1894) speaks well of the effect of thioform in favus and moist eczema. In two cases of favus which had proved refractory to all kinds of treatment, a complete and permanent cure was brought about in three weeks by the daily application to the affected parts of a thick layer of 10 per cent. of thioform in vaseline after removal of the crusts with olive oil. The same pomade was used with success in a number of cases of moist eczema of the scalp, face, trunk and limbs. The "weeping" ceased at the end of a period varying from four to fifteen days; then crusts formed, which on separating, left the parts cured. In all these cases the ointments and plasters commonly used in the treatment of moist eczema had previously been employed without effect.

# DISEASES OF THE EYE.

BY HENRY POWER, M.B., F.R.C.S.,

*Consulting Ophthalmic Surgeon to St. Bartholomew's Hospital.*

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## **1. Intra-ocular therapeutics.**

Henry Chausseaud, of Edinburgh (*Journ. of Pathology and Bacteriology*, Nov., 1893, and *Ophthalmic Review*, Jan., 1894, p. 30), has made a considerable number of experiments on the eyes of rabbits to determine the practicability of intra-ocular injections, their value as antiseptics, and the possibility of effecting re-absorption of the subretinal fluid in cases of retinal detachment. The quantity of the solution injected varied from 2 to 4 cubic millimetres, and consisted of sterilised serum mingled with the substance the effects of which were to be tested. The conclusions at which Chausseaud arrived are that various fluids may be introduced with safety into the posterior chamber of the eye, that chlorine water is the only substance which fulfils the necessary condition of a useful intra-ocular antiseptic, since it is a good antiseptic and does not cause any inflammatory reaction. Corrosive sublimate and carbolic acid, the former in the proportion of 1 in 5,000 and the latter of 1 in 50, are less serviceable owing to the stability of the compounds they make with albumen and the inflammation they are apt to excite. Tincture of iodine, camphorated naphthol, hydronaphthol, eucalyptol and other antiseptic oils are too irritating to be employed. Boric acid and iodoform are non-irritants, but their action is feeble; oxycyanide of mercury and peroxide of hydrogen are just as good antiseptics as chlorine, but the former causes opacities in the vitreous, and the latter seems to black the pigment of the eye. Creolin proves to be a violent irritant, and its antiseptic properties are doubtful. Pyoktanin does not act as an antiseptic in the vitreous; it gives rise to neuritis, which is followed by degeneration and atrophy of the optic nerve. The idea of causing a localised adhesion of the retina by inducing a moderate degree of inflammation in the former has not been very successful in practice. Slight degrees of retinitis can easily be produced, but the effusion which succeeds is not, when absorbed in rabbits, followed by adhesion between the choroid and retina. When severe retinitis is induced, adhesion



of the retina to the choroid occurs, but the retina is disorganised for some distance from the point of injection. Although the *staphylococcus pyogenes aureus* was injected upwards of fifty times, no instance of sympathetic ophthalmia occurred.

## **2. Relative value of mercury and potassium iodide in syphilitic affections of the eye.**

Chibret (*Report of the Eighth International Congress of Ophthalmology*, held in Edinburgh, Aug., 1894; *Annales d'Oculistique*, t. cxii., p. 127) states that for the past nine-and-twenty years he has doubted the specific value of potassium iodide in syphilis, and nineteen years of ophthalmic practice have confirmed his views on this point. His observations on patients under treatment for long periods have led him to the following conclusions:—That in syphilitic diseases of the eye mercury alone almost always acts, whilst the iodide *per se* never acts; that in syphilitic affections of the system at large, mercury by itself acts almost always and upon all complications, whilst the iodide alone acts only on certain complications, and not with certainty even upon them; that both in general and in ophthalmic syphilis, mercury by itself constitutes the touchstone to fix the ætiological diagnosis; that mercury, which is the only specific against syphilis, is at the same time a poison to the organism, and especially to the nervous system, whence proceeds the gravity of nervous syphilis: that the iodide as a counter-poison to mercury is frequently indicated in syphilis to eliminate mercury, or to enable it to be borne; that the iodide acts on lymphatic conditions and on rheumatism; and lastly, that serious syphilitic disease is only cured by mercury alone or in association with the iodide. On the whole he considers that the practice of ophthalmology leads to mistrust in the efficacy of the iodide, and hence to a denial of its specific value. The iodide in fact has no local action like mercury; it acts on the organism at large immediately by effecting the elimination of mercury, and on rheumatic and lymphatic conditions, an action which is often indicated in addition to the treatment of the syphilis mediately. The iodide in aiding the elimination of mercury occupies a certain position in a mercurial course, preventing or relieving the toxic influence of mercury, and facilitating at the outset the administration of mercury in patients who are intolerant of its action.

## **3. Antiseptics in ophthalmic surgery.**

A report on this subject was read before the Société Française d'Ophthalmologie by J. P. Nuel (*Bulletins et Mémoires de la Société Française d'Ophthalmologie*, Nov., 1893, p. 1) which led to an interesting discussion. Nuel pointed out that the

principal cause of failure in operations upon the eye is microbic infection of the wound. Up to quite a recent period it was thought that pathogenic germs were ubiquitous, and that, as a rule, all wounds were infected: hence it was held to be necessary to kill all microbes, and not only to cleanse the surfaces of the wounds, but in addition to use carbolic acid spray; but it has been recognised that the air is not quite so charged with living forms as was once believed, and that efficacious antiseptics in the treatment of infected wounds is extremely difficult, if not impossible, whilst the prevention of the access of pathogenic germs by simple attention to cleanliness is quite practicable. It is impossible to apply to the surface of a wound or even to the normal conjunctiva an antiseptic sufficiently concentrated to kill all pathogenic microbes, for such an antiseptic would excite so much irritation as to increase the secretion of mucus and thus to furnish a favourable medium for the growth and development of microbes. Nuel places mercurial sublimate at the head of the antiseptics, and finds the eyes bear it well in the strength of 1-2000, whilst it is very efficacious when no stronger than 1-5000; other antiseptics are the mercurial iodide in the proportion of 1-20,000, mercurial cyanide and oxycyanide in the proportion of 1-1,500, the trichloride of iodine 1-500 to 1-2,000; also phenosalyl, which is one of those most recently suggested; boric acid and boroborax are highly thought of by some. The section once made, the only fluid used should be sterilised normal solution of sodium chloride, which may be freely applied. Aseptic bandages and wool should constitute the dressings; care should be taken not to use iodoform with sublimate solutions, since the iodide of mercury is formed which is highly irritating. The sterilisation of all instruments is, of course, essential, and he recommends that they should be boiled in an alkaline solution both before and after being used, but if the handles be of ivory, which he prefers to metal, they may be cleansed by immersion in a 1 per cent. solution of mercury cyanide. Nuel notices also as a possible source of infection, the solutions of atropine and cocaine, phials of which are often in use for some time, and for many different patients.

#### **4. Treatment of diphtheritic conjunctivitis.**

Gilbert Sourdille (*Archives d'Ophtalmologie*, Jan., 1894, p. 48), after noting the numerous remedies that have been proposed for the treatment of this affection, observes that one point comes into strong relief—that cauterisation with nitrate of silver should be carefully avoided. This maxim has been accepted by all ophthalmologists; so, too, mercurial inunctions

and blood-letting are more harmful than beneficial. The application of lemon juice, recommended by Fieuzal, an old and popular remedy, often proves serviceable, though it must be acknowledged it often fails in preventing the serious accidents that result from diphtheritic infection; the same may be said of the various antiseptics, as boric, salicylic, and carbolic acids, corrosive sublimate, binocide of mercury, and mercurial salicylate. Sourdille relies most upon a mixture of carbolic acid one part, and glycerine ten parts, which only produces slight smarting, lasting for a few minutes. The lids should be everted, thoroughly cleansed with a jet of an antiseptic solution of biniodide of mercury containing one part of the biniodide in 20,000 of water, a little boric acid, and an endeavour made to remove the false membrane; if this is found to be impracticable, the membrane may be washed with an alkaline solution, such as solution of sodium bicarbonate, in the hope of dissolving it to some extent. The solution of carbolic acid in glycerine is then to be applied with a plug of cotton wool, care being taken to avoid the cornea if this be intact. The cleansing process may be repeated twice daily. In the intervals, a solution of methyl violet or blue may be applied every two hours, having the strength of one part in 1000. If the cornea is implicated, the antiseptic jet should be directed upon the base of the ulcer, and the carbolised glycerine applied with a brush, and this may be followed by the instillation of pilocarpine or methyl violet, and the powder of iodoform should be dusted over it.

The employment of subconjunctival injections of sublimate has been recommended by various observers, and, at the eleventh International Medical Congress at Rome (see report in **Knapp's Archives of Ophthalmology**, vol. xxiii., p. 313), **Bocchi**, of Pavia, pointed out that subconjunctival injections of sublimate solutions are most effectual in superficial corneal ulcers with hypopyon, and though to a less degree, in parenchymatous keratitis, plastic iritis, traumatic or sympathetic iridocyclitis. In a case of syphilitic retinitis they proved in his hands remarkably successful, and he states that in several instances of hypopyon keratitis in which sublimate irrigations were of no avail, a single conjunctival injection sufficed to destroy the infection entirely. Continued injections of sublimate ought to be performed with the greatest caution; he found that sublimate injected under the conjunctiva of a dog was transformed into calomel—as could be shown by microscopic examination of the tissues long afterwards. **Alt** (in *American Journal of Ophthalmology*, 1894, vol. xi., p. 33) uses a solution of the bichloride of 1-1,000, and injects two



minims near the outer canthus with great advantage in cases of recurrent iritis, exudative choroiditis, irido-choroiditis and central choroido-retinitis, and in one case of detachment of the retina. Terson (*Annales d'Oculistique*, May, 1894, T. cxi., p. 347) records a case of a woman suffering from a very severe attack of episcleritis who made a rapid recovery on the injection of solution of the sublimate. The patient had been the subject of the attack for four months, and it had resisted hot fomentations, anodynes, salicylate of sodium and iodide of potassium. Tersen injected in the region of the episcleritis two drops of a solution of the sublimate of the strength of 1-1,000; sharp reaction followed lasting for some hours. A second injection was practised a week later, and after a third injection with the same interval, complete recovery followed.

### 5. Treatment of detachment of the retina by electrolysis.

The failure of many different methods of treatment to effect restoration of vision after the retina has been extensively separated from its bed, such, for example, as subcutaneous and subconjunctival injections, dry cupping, pilocarpine and rest leads to some scepticism in regard to other reported successful plans. Gillet de Grandmont, however (*Archiv. d'Ophtalmologie*, vol. xiv. p. 337), records a case in which fairly good results were obtained by the employment of electrolysis. Instead of using the needle with cutting edges employed by Abadie, he uses a simple pointed one which can be made to enter the globe easily by simple movements of rotation. It possesses a shoulder or stop preventing the operator from penetrating to too great a depth. The case in which he tried this plan was a delicate woman forty-four years of age, who suffered from an attack of macular choroiditis in 1892. With her right eye, which was the affected one, she could count fingers at 1 metre, and with a 16 D her vision was  $\frac{6}{18}$ . The left eye was practically lost, as she had no direct or central vision, and could only count fingers at 20 centimetres in the peripheric field. In March, extensive detachment of the retina in the upper and inner part occurred. The vision was reduced to the perception of light, the globe was soft. Forty-eight hours afterwards, de Grandmont introduced, with antiseptic precautions a platinum needle into the pouch of the retina. The needle was connected with the positive pole of a battery, and a current of 5 milliamperes was transmitted for the space of one minute, the eyes were closed and the patient put to bed. The operation was almost painless, and the reaction slight. Two days afterwards no

change in the condition could be observed with the ophthalmoscope. Four days after the first operation, the same proceeding was repeated. A further ophthalmoscopic examination showed that the retina had re-applied itself, and in the course of a month the patient was able to resume her occupation, a 16 D glass giving her  $\frac{6}{36}$  instead of  $\frac{6}{18}$ . Three months after the operation no relapse had occurred. The only question here is whether the good results were not the consequence of the puncture rather than of the electrolytic action induced. It may be worth noting, as **Boerma** and **Walther** point out (*Græfe's Archiv für Ophthalmologie*, B. xxxix., p. 71) that whilst **Donders** and **De Haan** considered that there was a rapid fall in sharpness of vision between the ages of fifty and sixty, and that at eighty it was reduced to one-half, later authors, by excluding eyes affected with cataract, have shown that there is no such sudden failure between fifty and sixty, and that at eighty the reduction is only one-third, vision being equal to  $\frac{6}{9}$ , so that there is no sudden declension but only a gradual failure of sight.

The treatment of detachment of the retina by electrolysis was also the subject of a discourse by **Van Moll** at the Fourth Séance of the Société Néerlandaise d'Ophthalmologie, Dec. 17, 1893 (*Weekblad v. h. Nederl. Tijdschr. v. Geneesk.*, 1894, p. 194). The cure of the detachment was supposed to be due to the effects of the electric current in producing adhesive inflammation between the choroid and the retina. Before applying this method to man, Van Moll experimented upon rabbits, with a view of determining whether electrolysis could be supported by the human eye, what strength of current it was advisable to employ, and lastly, whether there is any difference in the action of the two poles. He employed a Stöhrer's battery of twenty elements. One of the poles was of charcoal covered with chamois leather, the other was armed with a platinum needle. A galvanometer to determine the intensity of the current in milliampères, and a rheostat to regulate and vary the resistance were introduced into the current. When the intensity amounted to 10 milliampères, bubbles of gas formed in the vitreous humour at the negative pole; at the same time slight inflammation was excited with exudation and swelling of the retina. After two or three days, all the symptoms of inflammation subsided, and a cicatrix of the retina was alone left. With the same intensity of 10 milliampères, the effects at the positive pole are still more marked, and though less gas is extricated, the swelling and exudation of the retina are more expressed, and do not disappear under eight days. Relying on these experiments, Van Moll experimented on

man in five cases of old detachment of the retina. In one case there was transient improvement, in two cases no adhesions took place.

At the Eleventh International Medical Congress at Rome Meeting of March 30th (*Knapp's Archives of Ophthalmology*, vol. xxiii., No. 3, p. 313), both Gradenigo and Hirschberg stated that they had cured cases of recent detachment of the retina by energetic massage of the globe.

### **6. Treatment of epiphora by galvano-cautery applied to the mouths of the ducts of the lachrymal glands.**

Bettremieux (*Journ. d'Oculistique du Nord*, 1893, and *Archiv. d'Ophthalmologie*, vol. xiv., p. 202) proposes the application of the galvano-cautery to the orifices of the ducts of the lachrymal glands in the outer and upper part of the conjunctival sac. Cocaine must first be applied to produce insensibility of the membrane. The upper lid is then everted, and a certain number of punctated superficial cauterisations performed. The pain produced is trifling. The application of the cautery may be repeated after the lapse of a few days. The author thinks that the cauterisations may after cicatrisation tend to obliterate the mouths of some of the ducts, and thus reduce the quantity of fluid discharged immediately, and that the closure of the ducts may act secondarily, and bring about atrophy of the gland.

### **7. Electrolysis in the treatment of the canaliculi.**

Electrolysis has also been employed in ocular surgery by Lagrange, of Bordeaux, who (*Congrès International de Médecine, Rome, April, 1894*) finds it serviceable in rendering the mucous membrane soft and extensible, and thus materially facilitating the passage of sounds of large calibre. The current, however, should only be of feeble strength, for if it exceeds 6 to 8 milliampères it produces eschars, which in cicatrising lead to strictures that cannot be overcome. The current may be applied for the space of two or three minutes at a time. The strongly marked antiseptic action of electrical currents materially assists their beneficial action.

### **8. Suture of lids in xerophthalmia.**

During the Russian Medical Congress of 1893-94, Le Roudine (*Wiestnik Ophthalmologii*, Jan.-Feb.) presented to the ophthalmological section a case of xerophthalmia cured by suture of the eyelids. Three years previously both corneæ were affected and vision was reduced to the quantitative perception of light. The two eyelids were brought together by



sutures, a small opening being left near the middle. The result was most satisfactory; the cornea as seen through the small fissure was bright and polished, and the patient could see the eye of a needle.

### **9. Treatment of keratoconus.**

A. Chevallereau (*Bulletins et Mémoires de la Société Française d'Ophthalmologie*, Nov., 1893, p. 385) recommends the employment of the actual cautery at a red heat to the summit of the cornea, a proceeding which had previously been adopted by Abadie and Guiot. The latter author remarked that it does not cure the keratoconus, but it modifies advantageously the malformation, and renders it more easy to supply good correcting glasses. The same proceeding has also been practised by Critchett, though the method of applying the cautery is somewhat different. Chevallereau passes the fine point of a thermocautery through the apex of the cone, withdrawing it when the aqueous has escaped. Atropine solution is then instilled, and a compressive bandage applied. Anterior synechiæ, if they form, are detached by the introduction of a curette through a small opening in the cornea. Critchett simply applies the cautery to the summit of the cone without perforation. It is well to note that Abadie has observed glaucoma supervene apparently as a consequence of this operation.

### **10. Treatment of glaucoma.**

Knies of Freiburg (Report of the Heidelberg Ophthalmological Society for 1893, p. 118) suggests a modification of the operation for sclerotomy in cases of glaucoma, which consists in dividing the peripheral portion of the iris in making the scleral section. He terms the operation irido-sclerotomy, but his experience of the results appears to be limited to one instance in which, undoubtedly, the effect of the operation was satisfactory. Eserine should be instilled as a preliminary, and care should be taken that the lens is not wounded. It seems probable that there would be considerable hæmorrhage, and blood is not easily absorbed in glaucomatous eyes.

### **11. Extraction of cataract in myopia.**

This proceeding has been recommended by several operators during the past year. Thus Pflueger (Report of Congress at Rome, *Annales d'Oculistique*, t. cxi., 1894, p. 362) states that during the past three years he has performed discission of the lens in one eye of patients affected with high myopia. He has operated on 30 eyes belonging to 20 women and 10 men, the ages varying from 10 to 40. The degree of myopia varied from 10 to 22 diopters, and was accompanied in some instances with

astigmatism varying from 0·5 to 3 D. He notes in passing that the success of the operation is less marked in the higher than in those of moderate degrees. He considers that the limit of myopia in which discission should be performed is 10 D for children and 12 D for adults. The change of refraction consequent on the operation was in 17 cases from 14·5 to 16 D; in eight cases from 17 to 18 D, and in five cases from 18·5 to 20 D. It is not possible for various reasons to predict the degree of alteration of the refraction that will follow the operation. In all the cases the sharpness of vision was increased. In many cases it was doubled or even tripled. No evil results followed in any of his cases.

**Fukala** (*Société Ophthalmologique de Heidelberg*, Session 1893, p. 191) is also in favour of the extraction of the lens in cases of high myopia. He points out that correcting glasses of 15 D are rarely well borne, since they render objects too small and cause them to appear too distant. He recommends before operating, however, it should be satisfactorily ascertained that there is no retino-choroiditis. He only operates on adults in whom the degree of myopia amounts to H 14 or H 15 D, and on children in whom it amounts to 10 D, for at 20 years of age it will probably amount to 20 D. In cases where the degree is 16 or 17 D, only one eye need be operated on, the other remaining intact for near vision. But if it exceed this and amount to 18 D, Fukala prefers to operate on both eyes, in order to obtain binocular vision. He finds that after the lapse of four or five years the form of the globe remains unaltered, showing that there has been arrest of the ocular ectasia. The patients have, as a general rule, expressed themselves as satisfied with the result. The method of operating is by discission, the softened lens being subsequently extracted without iridectomy; other operators were in favour of Fukala's operation, though **Valude** quoted a case in which after the operation detachment of the retina had occurred.

## **12. Dressing for the eyes in disease and after operations.**

**Braquehay** (*Archives d'Ophthalmologie*, t. xiv., p. 302) observes that the difficulty of maintaining dressings with bandages of the ordinary kind on the eye and face is sufficiently familiar to all operators. He has made trial of various ointments proposed by **Unna**, having a base of gelatine or other analogous substances, to make them adhesive. One of these consisted of zinc oxide 15 grammes, gelatine 15 grammes, glycerine 25 grammes, and water 45 grammes. Another was composed of zinc oxide

50 grammes, salicylic acid 2 grammes, rice starch 15 grammes, glycerine 15 grammes, and distilled water 75 grammes ; the mixture to be boiled down to 140 grammes. Neither of these formulae gave a paste of sufficient viscosity, and he found the following paste to be much more adhesive : Zinc oxide 10 grammes, gelatine 35 grammes, glycerine 20 grammes, and water 35 grammes. To render it antiseptic, iodoform, salol, carbolic acid, salicylic acid or perchloride of mercury may be incorporated with it in ordinary proportions. The advantage of this mode of dressing is that it exercises very slight, gentle and uniform pressure, that the patient can attend to his toilet as usual, that the occlusion is complete, and that it is easily replaced with the aid of a little warm water. It is very serviceable in cases where one eye only is the subject of purulent ophthalmia, affording, when applied to the other, perfect protection. The cases in which it is inapplicable are when energetic compression is required, where the eye weeps to a great extent, and in children. In England as well as in France and Germany, a special fabric of silk, coated on one side with gelatine, is in general use after cataract operations. The same practitioner in a memoir (*Archives d'Ophthalmologie*, Nov., 1893, and *Annales d'Oculistique*, 1894, p. 376) recommends the employment of oil, containing 4 per cent. of the biniodide of mercury, as an effective remedy in cases of ciliary belphtaritis, chronic hordeola, ulcers of the cornea, and granulations of the conjunctiva.

### **13. Therapeutic action of ice in ophthalmic surgery.**

Angus McGillivray, of Dundee (Paper read at the Annual Meeting of the British Med. Association, and reported in the *Ophthalmic Review*, Sept., 1894, p. 294), considers that sufficient attention is not paid to cold as a beneficial agent in ocular lesions. Cold, locally applied, constricts the arterioles and diminishes blood supply ; hence it limits diapedesis and the escape of plasma into the tissues around, and reduces pain. It may be further regarded as an antiseptic. By the use of the icebag Michel found that the temperature of the anterior chamber of the eye of a rabbit could be reduced to 27° F. The mode of application of cold recommended by McGillivray in cases of recent injury to the eye is to apply, after the instillation of a drop of sublimate solution, as an antiseptic, of the strength of 1 in 5,000, iced compresses immediately and continuously. If, after a day or so, no inflammatory reaction has set in, the compresses are laid aside. In cases attended with inflammation, the compresses are continued till the process has subsided. Each compress should be removed as soon as it



begins to lose its coolness, and a fresh one applied. Instead of the compresses recommended by McGillivray, a Leiter's tube may be employed, which has the advantage of maintaining a constant low temperature, while at the same time it prevents the irritation of the patient by the necessity for constant renewal of the compress, and has the great additional advantage that it can be maintained in position without difficulty during sleep.

#### **14. The treatment of strabismus.**

A valuable paper on strabismus was read before the Société Française d'Ophthalmologie (*Bulletins et Mémoires de la Société Française d'Ophthalmologie*, ann. xi., p. 93) by H. Parinaud, who maintained that he had hitherto had a false conception of strabismus. Success has no doubt been attained since the time of Dieffenbach by many practitioners, but the success is not constant, and it cannot be promised with assurance. It may be treated by operation or by optical means, but in the former case unsatisfactory results often occur. Parinaud lays down the following definitions:—Concomitant squint is a defect in the development of the visual apparatus, the chief symptom of which is the impossibility of converging the two eyes on a fixed object. The defect partly attaches to the motor and partly to the sensory apparatus. In the first instance, there is only imperfection in the innervation required for convergence, and this is of cerebral origin, as is evidenced by the strabismus which follows convulsions, hereditary defects of cerebral development, and also by that which follows any defect in the eyes themselves which interferes with binocular vision in infancy; before, that is to say, the cerebral apparatus for binocular vision is properly developed. Such conditions occur in errors of refraction affecting the power of accommodation, and defects of structure, such as leucomata, interfering with the due fusion of the images. The rôle of accommodation is the more important condition in strabismus convergens, which is characterised by a kind of persistent spasm of the convergence; that of imperfect fusion of the images is more important in divergent strabismus, characterised by the progressive relaxation of the innervation required for convergence. It is around these three factors, convergence, accommodation and the fusion of images, that the whole pathogeny of strabismus revolves. At the outset, then, strabismus is characterised by a disturbance of the innervation of convergence. This disturbance may be transitory, and spontaneous cure may be observed; or it may be cured by optical means; but when it has become fixed, secondary conditions are established, such as the more or less complete loss of the power of convergence, the retraction of the

fibrous parts outside the eye, as the capsule of Tenon, the shortening of some muscles and the elongation of others. Internally, the deviating eye becomes amblyopic, and this occurs to a greater extent in proportion to the shortness of the period after birth at which the strabismus appears. In the treatment of a case of strabismus then, six factors have to be taken into consideration. The excessive or defective power of accommodation, the influence of defect in the power of fusing images, the greater or less degree of defect of the innervation of convergence, the retraction of the fibrous aponeurosis, the secondary changes in the muscles, and lastly the modifications that have been effected in the sensorial apparatus. M. Parinaud lays down the rule that in the dioptric treatment of convergent strabismus, atropine should be first employed in such a manner as to obtain complete relaxation of accommodation effort. This not only enables the refraction to be accurately determined, but if the eyes assume their normal position, it shows that there is no contraction of the muscles; and it is highly probable that a cure will be obtained by the adaptation of appropriate glasses. In infants where the adoption of glasses is not practicable, the occasional instillation of atropine for a fortnight at a time is to be recommended, since it tends to prevent contraction of the muscles. In divergent strabismus, glasses are of little service, though occasionally in cases of anisometropia they may effect a cure; and he records a case in which the strabismus was removed by supplying a  $-8$  D to one eye and  $+0.5$  D to the other. In the earlier stages of divergent strabismus, prisms with bases inwards, combined with concave glasses, may prove very useful. He approves of the systematic exercises of the eyes suggested by Javal, and thinks the plan worthy of trial, though it often requires great patience on the part of the patient, and not unfrequently fails. The surgical treatment includes four methods of operating: Tenotomy, advancement of the muscle, advancement of the capsule, and division of the capsule.

Hansell, of Philadelphia (*Annals of Ophthalmology and Otology*, Jan., 1894, p. 49), lays stress on the occurrence of amblyopia as a positive element in producing squint and in determining the squinting eye, whilst it has an important bearing on the prognosis. If it be marked, there is little effort or desire for fusion of the images, and binocular fixation is hardly to be looked for after tenotomy. He directs that long and careful attention should be directed, when no amblyopia is present, to the full correction of all optical defects, and no operation should be performed till the age and intelligence of the patient are sufficient to enable it

to discern double images with the tests employed, and to give accurate information of their relative positions. He is satisfied that about 75 per cent. of all cases of internal squint are complicated with an upward deviation of one cornea. This defect should be compensated when present by tenotomy of the superior rectus of the upward, and if necessary, the inferior of the downward deviating eye.

### 15. Epithelioma of the sclero-corneal junction.

Fage, in a paper read before the Société d'Ophtalmologie de Paris, Dec., 1893 (reported in *Archives d'Ophtalmologie*, t. xiv., p. 324), in which he gave the details of a case studied from a histological point of view, observed that epithelioma of the conjunctiva is a tumour which has little tendency to perforate the ocular tunics even at the point which Lagrange and others think the most vulnerable. In the discussion which followed Valude corroborated the views held by Fage, and considered that an attempt should always be made to save the eye by removing the neoplasm, before proceeding to enucleation, and Abadie referred to several cases that had fallen under his own observation, in one of which a cure was effected by touching the surface with a concentrated solution of chlorate of potash, another by careful cauterisation with crystallisable acetic acid, and still another where a woman was the subject of a large conjunctival epithelioma, and in which recovery took place with cicatrization of the surface by the application of methylene blue in the strength of 1-100, which was gradually increased to 1-20.

Fumagalli, in a paper read before the Congress at Rome (report in the *Annales d'Oculistique*, t. cxi., 1894, p. 369), stated that he had found that an ointment containing chlorate of potash, or the powdered salt, acted as a cicatrisant in cases of epithelioma with open sores. The epithelial cells as well as the proper elements of the neoplasm were rendered horny.

### 16. Lid pressure as a cause of astigmatism.

That the sharper curve of the vertical meridian of the cornea in the normal eye is attributable to the pressure of the lids is generally admitted, but the powerful influence of firm pressure on the eye continued as long as consistent with comfort, may cause no less than nine dioptrics of astigmatism. This statement, originally made by Bull (*Des conséquences optiques et pathologiques du clignement des paupières*) has been tested, and to a certain degree corroborated by Lucien Howe (*The American Journal of Ophthalmology*, Sept., 1894, vol. xi., p. 257). He finds, as Roosa has also done, that astigmatism is of common occurrence, even



amongst those who believe themselves to have perfect vision. In the eyes of thirty-three artists, the average amount of astigmatism in the sixty-six eyes was .905 dioptric, the meridian of greatest curvature being sometimes horizontal, at others vertical. We have seen a case where a high degree of astigmatism was produced by the pressure of a new upper lid after a plastic operation, the curvature of the cornea being previously normal.

### 17. Epithelioma.

Heyl, of Philadelphia (*The American Journal of Ophthalmology*, vol. xi., 1894, p. 216), records a case of extensive epithelioma, commencing near the outer canthus, which appeared to him to be beyond the use of the knife, but on applying a simple wash of yellow pyoktanin, he was pleased to find the brawny swelling around the ulcer to be disappearing, and at the time of reporting it was closing up.

### 18. Prevention of albuminuric retinitis in pregnancy.

R. Q. Culbertson (*The American Journal of Ophthalmology*, vol. xi., 1894, p. 197) reports a case of albuminuric retinitis, in which great benefit appeared to be derived from the administration of bichloride of gold in doses of  $\frac{1}{20}$ th grain. He thinks heredity has much to do with the occurrence of albuminuric retinitis in pregnancy, and also recommends the employment of trinitrine (nitroglycerine) in doses of  $\frac{1}{150}$ th to  $\frac{1}{200}$ th of a grain, the bowels being kept open by mild purgatives.

### 19. Testing of eyesight in schools.

Priestley Smith (Ophthalmological Society of the United Kingdom, May 3, 1894) is a strong supporter of the plan of periodically testing the eyesight of children in schools. The governors of King Edward VI. School in Birmingham, which comprises about 2,200 boys and girls between the ages of 8 and 19, established there years ago the useful practice of a periodical examination of the scholars in regard to height, weight, chest measurement, eyesight and hearing. The anthropometric committee, presided over by Professor Cleland, with Professor Windle for Secretary, find that the eyesight is only tested in 8 out of 483 boys' schools, and in only 6 of 129 girls' schools in the United Kingdom. Priestley Smith thinks that the acuteness of vision and the colour vision should be tested. Many of the principals expressed their willingness to undertake anthropometric work, and Priestley Smith has drawn up a fly-sheet showing how the tests may be conducted.

### 20. New instruments.

Welchi, of Buenos Ayres (*Archives d'Ophthalmologie*, t. xiv.,

p. 64), has devised an ingenious method of detaching the blades of forceps and other similar instruments from each other, with a view to the complete sterilisation of the angle at the point of union, a part that is almost inaccessible and escapes even careful attention. Hosch, of Basel, has constructed a little instrument intended to prevent myopia (*Archives d'Ophthalmologie*, t. xiv., p. 79). It consists of a screen of celluloid or of aluminium which rotates on an axis parallel to the fronto-orbital border. The free border presents a notch at the level of the root of the nose. If the wearer leans forwards or bends down too much the screen falls and shuts off the view; in order to see, the head must be raised, when the screen rises of itself. A small weight movable on a runner placed at one of the extremities of the axis round which the screen revolves determines for each person the point at which the screen shall fall.

### 21. Advantages of scopolamine.

Von Krudener (*St. Petersburg. med. Woch.*, 1894, No. 9) recommends scopolamine as a much more energetic mydriatic than atropine. A solution containing only 1-100,000th exercised a marked dilating influence on the pupil, and synechiæ which resisted the action of atropine yielded to that of scopolamine. The usual strength is about one grain to the ounce. Children tolerate one or two drops daily, adults bear as many as thirty drops. Scopolamine does not occasion cerebral phenomena like those of atropine, and in glaucoma it does not cause increase of intra-ocular tension.

### 22. A new antiseptic.

Thioform is proposed by Rognan (*Flandre Méd.*, Aug. 23, 1894) as a substitute for iodoform, having a less objectionable odour, and being less toxic, whilst as an antiseptic it is superior to iodoform. It is well tolerated when applied to the eye. Rognan has employed it in thirty-eight cases of ulcer of the cornea of various degrees of severity. It possesses a remarkable desiccating property, and on this account it acts favourably on cases of conjunctivitis, since it restrains secretion. Its application has proved most successful in the infectious ulcers of the cornea, viz., those that are named in France *Kératite des moissonneurs*, on account of their frequency in those engaged in harvest operations, and who have accidentally abraded the cornea with an awn of barley or the like.

# DISEASES OF THE EAR.

BY GEORGE P. FIELD, M.R.C.S.,

*Aural Surgeon, St. Mary's Hospital.*

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## **International Medical Congress, Rome, 1894. Section of Otology.**

The following extracts from the proceedings are taken from a report of translations by various British specialists, edited and arranged for the *Journal of Laryngology, Rhinology and Otology* of June, 1894, and subsequent months.

### **I.—MIDDLE-EAR SURGERY.**

*On the operative treatment of cholesteatoma*, Reinhardt described the method, founded on Stacke's and Schwartz's, which he adopts. Opening first into the antrum by Schwartz's method, he loosens the membranous portion of the meatus, above and behind, then cuts it through at right angles and fixes the flaps above and below. The bridge of bone remaining between the bony meatus and the artificial bony canal is now removed in scales, so as to bring the atticus and aditus freely into view according to Stacke's plan. Any remains of malleus, incus, and membrane, and all the cholesteatomatous masses can now be freely removed from the single cavity formed thus out of the meatus, tympanum, aditus, antrum, and mastoid cells. This cavity must be kept open permanently by introducing flaps of skin either from the skin of the head, or preferably from the posterior surface of the concha, by which latter method the growth of hairs into the cavity is prevented. Out of nineteen cases, fifteen had a persistent opening, and in them there was no recurrence of the disease.

Politzer considered Reinhardt's operation an improvement on Stacke's, because the latter made the invasion of epidermis easier than before. The maintenance of a persistent opening behind the ear did not, however, always offer a certain guarantee against recurrence of cholesteatoma, since these might form in a remote cavity of the middle ear beyond the reach of the eye.

Colladon read a paper on "*Abscess of Fixation in Otology*," stating that acute median suppurative otitis could be terminated



spontaneously by the formation of a diffuse external otitis, the cure of which in three or four days' time was followed immediately by the cessation of the otorrhœa and the cicatrisation of the perforation.

This external otitis of fixation could be artificially induced by the instillation of drugs such as thymic acid into the ear. It was distinct from furuncle, being quite independent of microbes.

Gellé read an important paper, published in the *Ann. des Mal. de l'Oreille*, Jan., 1894, on the pathogenic importance of an osseous septum, constituted by a bony lamina which forms the posterior wall of both the internal auditory meatus and the tympanic cavity. He designates this the *osseous casing of the facial nerve*, and dwells on its bearing upon mastoid operations and upon lesions of the facial nerve.

Ludewig, speaking on *the extraction of the malleus and incus*, remarked that the diagnosis of caries of these bones was uncertain in many cases. Even granulations which break through the membrana flaccida in front of or behind the processus brevis, were no certain signs of caries of either of them. Destruction of the drum-head in the superior posterior quadrant was more diagnostic. In operating, it was necessary in the first place, if possible, to allow the union of the end of the manubrium with the margin of the bone to remain until the tendon of the tensor was cut through, and the joint between the incus and stapes severed, as otherwise the free swinging handle of the malleus was easily moved out of place, and the snaring of it rendered difficult. In extracting the incus, a process of bone found over the entrance of the antrum should be avoided, as the hook was apt to catch here when too long. To prevent hæmorrhage, Ludewig recommended the hypodermic injection of ergot in front of the tragus, and behind the auricle, and thought hypodermic medication would come to perform a useful function in influencing processes in the middle ear.

Politzer, in the discussion, recommended the term *spina tegminis* to be applied to the process of bone alluded to in the paper. He remarked that the extraction of the hammer and incus was only practised by him if the greater portion of the drum-head were destroyed, and the hammer therefore of no value for the function of hearing; also when there was cholesteatoma in the attic. When extreme deafness was present, there was an improvement in hearing after extraction; when hearing was nearly normal, in perforation of Shrapnell's membrane, with suppuration limited to the attic, the operation diminished it very much.

**Szenes** described the clinical features of *two cured cases of total deafness*. The first was that of a child, aged eight, who had recently had pain, deafness, and suppuration in both ears. When she came under treatment, there was no perforation to be seen, but both drums were inflamed, and the landmarks gone. Hearing on either side became rapidly worse, and although, at first, relieved by inflation, the benefit gained lasted for a shorter and shorter time, till deafness became such that conversation could only be heard through a speaking tube. There was continuous bilateral humming tinnitus. Subcutaneous pilocarpine injections were now commenced, in doses of one centigramme daily, the air douche being also employed in the meantime. After the seventh and final injection, she felt a cracking in the ears, and the hearing returned. Since then there had been no defect.

The second case was that of an aged patient who lost the hearing of the left ear in a Ménière's attack, and recovered it spontaneously after the seizure passed off, without treatment.

**Blake**, *on the use of the curette in operations on the mastoid*, said this instrument was of great value in all operations on the mastoid, after the cortex had been removed with the drill or chisel. The method pursued by the author, after a sufficient opening had been made, was to remove all diseased tissue with curettes of different sizes, until the interior surface of the cavity was quite smooth, and a free opening had been made into the antrum. The cavity was next allowed to fill with blood, and after the formation of the clot, the wound douched with sterilised water, and closed without sutures, dry baked dressings being applied. Preceding the operation, a large incision was made in the tympanic membrane, and any intra-tympanic bands pared which might be likely to interfere with drainages.

The curettes he employed were made with a long tip and a rounded bowl, and could be safely used for removal of the inner wall of the mastoid, as the rounded bowl pushed the dura away, and the work of the cutting was always outwards.

The handles were marked on the side corresponding to the cutting edge.

**Blake**. *Stapedectomy in chronic non-suppurative disease*. The method of operating pursued by this authority was detailed in the "Year-Book" for 1894, p. 413; but his conclusions as to results were not then available. At the Congress at Rome we were informed as to this in no uncertain terms. Out of twenty-two cases, Blake was only able to effect an improvement in the hearing power in a single case, in which the fixation of

the stapes was not complete. In the remaining twenty-one cases, there was no definite improvement, and some of them, on the contrary, underwent decided deterioration as regards both hearing power and tinnitus. In five cases, vertigo came on as the result of the operation, and in two of these it still persisted.

The conclusion of the paper was, therefore, that stapedectomy was not to be recommended in chronic catarrh, not only on account of its inutility, but still more because of the risk involved of danger to the labyrinth. The result of the *discussion* was, the general opinion that Blake's experiences should be considered conclusive, and that the operation ought to be confined to cases of suppurative disease if practised at all.

**Garnault.** *Three cases of extraction of the stapes.* The first of these was one of chronic hypertrophic catarrh with adhesions; the second, one of suppurative disease; and the third, one of sclerosis. The first case resulted in improvement in hearing for the watch, diminution for whispered speech, and total disappearance of the tinnitus.

The suppurative case remained the same in hearing power and the tinnitus disappeared. In the sclerotic one the hearing was not improved, but the tinnitus disappeared completely.

An important discussion followed this paper.

**Gradenigo**, with whom **Politzer** agreed, considered that the four months which had elapsed since the operations was not long enough to enable one to judge as to the ultimate effects. He thought the improvement that had so far resulted, might be attributed to the *irritative* effects of the operation causing swelling of the mucosa and temporary relaxation of the ankylosis, rather than to surgical effects.

**Masini** had not found the results in sclerosis were lasting, but **Garnault** maintained his conclusions that the results would be definitive.

**Blake** on "*Exploratory Tympanotomy.*" This was the term applied by the author, in a short paper, to the operation for gaining access to the tympanic cavity in order to divide adhesions, or to perform tenotomy of the tensor or stapedius muscles, or perisynectomy of the stapes.

In operating (without general anæsthesia), advantage was taken of the insensitive part of the membrana, viz., below and opposite to the round window. As sensitiveness increased from this point upwards, a sterilised solution of cocaine applied to the cut edges of the incision allowed the latter to be carried upwards painlessly.

**Rossi** described his own methods, and **Gellé** spoke as to the



general consensus of opinion that mobilisation of the stapes in sclerosis was unproductive of benefit.

**Ferreri** "*On the influence of caustic treatment in relation to the removal of carious ossicles.*" The author commented on the fact that in many cases in which the ossicles were removed in order to cure chronic suppuration, these bonelets were healthy, and the cavity of the attic continued to suppurate as before. His opinion was that in all chronic suppurations, operations ought always to be preceded by caustic treatment, and it was only when this was unsuccessful that removal of the ossicles should be thought of. He agreed with **Lane** that the ossicles of the middle ear have a very secondary importance in chronic suppuration of the ear, and that when the caustic treatment was not efficacious, antrectomy gave better results than simple excision of the chain of bones. He therefore recommended the extra-auricular method of **Stacke** and **Küster**, especially when not only the ossicles, but also the attic and antrum walls were carious.

The caustic treatment, "according to the classical method already described by himself," appeared to be the introduction of a 3 per cent. solution of nitrate of silver into the meatus. The cases were cited of two children in whom antrectomy failed to cure suppuration, whereas this result, attended by the expulsion of a diseased malleus, followed the caustic treatment. No discussion followed.

**Adam Politzer** described a new form of aural disease, *Primary affection of the labyrinthine capsule*, presenting the symptoms of dry catarrh of the middle ear, but consisting pathologically of an enormous proliferation and development of the labyrinthine capsule, especially those portions which surround the fenestra ovalis. The new tissue invades the fenestra, and produces complete ankylosis of the stapes, besides invading the labyrinth. The disease occurs in old people. If seen at the commencement, a course of iodide would be the best treatment, if any could be suggested at all for this practically hopeless disease.

### **British Medical Association, 1894. Section of Otology.**

Discussion on *Prognosis in chronic non-suppurative otitis media*. Neither in **Field's** nor in **Barr's** paper, nor in the discussion which followed, was reference made to *treatment*. Both **Field** and **Barr** agreed as to the tendency to chronic deafness resulting from neglect of the acute non-suppurative form and its early stages before structural changes have occurred.

Allusion was made to a new test by **Politzer** for ascertaining the patency of the Eustachian tubes, especially where the deafness

is unilateral. A vibrating tuning-fork is held before the patient's nostrils while he is directed to swallow. The prognosis is more favourable, if, after being previously heard louder in the normal ear, the middle "C" tuning-fork after inflation comes to be heard louder in the deafer ear—that is to say, if the result, like Weber's test, is *positive* for the diseased ear. The Eustachian tubes may, under these circumstances, be presumed to have been rendered patent after having been previously collapsed.

The importance of Rinné's test applied with forks of all grades was insisted on by **Field**, and the unfavourable prognosis to be formed when the test was negative for the whole scale.

**Dundas Grant** mentioned the anæsthesia of the membrana tympani attributable to atrophy of the sensory nerves in chronic middle-ear catarrh, and the frequency of the sclerotic form in young women, due to some extent, he thought, to washing and imperfectly drying the hair. He spoke of the benefits he had derived from intratympanic injections of menthol and camphor in paroline.

**Lennox Browne**, in opposition to Barr, maintained the importance of the removal of projections from the septum nasi, whether hard or soft when causing stenosis, in cases of chronic deafness, so as to establish free nasal breathing before giving an absolutely unfavourable prognosis.

**Hill** advocated the use of the Eustachian bougie as a last resource, citing a case in which benefit had been derived from its use when other treatment had failed.

**H. Knapp**, of New York, stated that when the unchecked persistence of causes of chronic deafness, catarrhs, nasal disease, and adenoids, has produced very marked impairment of hearing, their removal, either by natural termination or treatment (even when cicatricial tissue has, to a large extent, replaced the mucous membrane and interferes with the conduction of sound), may produce an improvement if the patient is placed under favourable hygienic conditions, so that the hearing organ can adapt itself to the new conditions. He alluded to two new methods of treatment resting on the surgical principle of treating stiff joints by forcible movements :—(1) The electric vibrophone, which during the last year has been much spoken of in America, and (2) the pressure probe of Lucæ; latterly this instrument has been rendered elastic, and Knapp advised dipping its end in a cooling solution of iced water and salt for a short time. With this the ossicular apparatus is moved by applying from ten to fifteen short pressures on the processus brevis. The result in a certain percentage of cases is very gratifying.

**Walker Downie.** *The care of the ear during the exanthemata.* From the very beginning of the illness, when there are any catarrhal symptoms, the patient should be directed to use the handkerchief frequently and strongly, and the nurse in attendance should see this carried out. By this means nasal discharges are got rid of through the anterior nares, and the air in passing with considerable force from the lungs helps to dislodge any discharge lying in the naso-pharynx.

If the child is too young to do this efficiently, or if there are enlarged tonsils or adenoids, Politzer's bag should be resorted to, and it may be used in the recumbent or sitting posture. A surprising quantity of discharge is thrown into the mouth in this way.

The above methods are to be practised whether the ear is implicated or not. If perforation of the membrane results, it is of no consequence. Cases coming under treatment later, with acute ear inflammation and pain, if not relieved in this way, should be examined, and the drum membrane incised if necessary. Thus pain is relieved, and chronic otorrhœa with its attendant dangers averted.

**Milligan.** *Observations on ossicectomy in chronic suppuration.* The author stated that the indications for the operation were not yet agreed upon, and that there being no definite rules for its performance, the surgeon must rely upon his own judgment in each case.

Persistent suppuration was not confined to cases of attic complication, but occurred also when the main disease lay in the atrium chiefly. This was due to two causes: (1) imperfect drainage, and (2) the presence of bone disease, both of which might be combined. There was a small class of cases, in which, contrary to the general belief, the disease was practically confined to the soft parts lining the walls of the cavities, and the adjacent surfaces of the ossicles, the parietal portions of the bone being scarcely affected. It was in this class that good results might be expected from ossicular excision.

The indications which had hitherto guided the surgeon on the question of operation—always a fine point to decide—had hitherto been (1) chronic purulent disease of the attic with ossicular caries; (2) the presence of cholesteatomatous masses in the tympanum. The author thought that these indications were too vague, and he therefore made the following conditions a guide in practice, viz., (1) either the presence of early chronic disease in the attic where ossicular disease existed alone or with but slight involvement of the surrounding parietes; or (2) chronic disease in



the atrium, where proper drainage could be maintained, and ossicular disease was present. With cholesteatomata present, a more radical operation was indicated. The operation of excision failing to cure, mastoidectomy should be had recourse to, but only under those conditions. As regards the operation, when troublesome hæmorrhage from presence of granulations occurred, it was better to divide it into two stages, removing the granulations one day, and completing the ossicular excision subsequently. The incus being the bonelet most frequently diseased, it should in all cases be carefully searched for and extracted.

**Barr.** *Excision of the malleus preliminary to antrectomy in antrum and attic suppuration.* The author performed seven excisions in six patients (in one patient of both mallei) for old-standing purulent disease of from seven to twenty-five years' duration, which had resisted all the ordinary methods of treatment for at least six months. The discharge was persistently offensive in all. Perforation in three cases was limited to a small one in Shrapnell's membrane. In the remaining four, with a larger perforation, there was clear evidence of antrum or attic disease. The therapeutic results were *improvement* in all, but *permanent cure* in none. In the two least benefited, the mastoid antrum and attic were subsequently opened from behind by Macewen. The first of these was completely cured of discharge, and the second promised to be equally successful. The author thought removal of the malleus a useful preliminary to the major operation, which latter should always be employed if the smaller operation failed.

**W. H. Bennett** on "*Post-mastoid tenderness as a sign of blocking of the lateral sinus*" (*Lancet*, Oct. 21, 1893). This point was illustrated by a case operated on by the author at St. George's Hospital, on May 7, 1893. The patient was a youth aged 17 years, who had had influenza, followed by pain about the right ear, which was relieved by the appearance of some discharge. The latter ceased suddenly and then rigors and vomiting set in. The patient became very ill and was admitted into hospital. There was fever (temperature 103°) with slow pulse; no tenderness over the mastoid, but in the post-mastoid area deep pressure caused the patient to flinch. This tenderness increased, and there were drowsiness, photophobia and intense frontal headache. No sensitiveness over the mastoid, but some discharge from the meatus. Lancing a swelling in the posterior wall of the meatus, which occluded its lumen, did not relieve the symptoms. Accordingly blocking of the lateral sinus having been diagnosed, operation was determined upon. The antrum being first opened

and a few drops of pus set free, the sinus was exposed. All pulsation was absent, and only a drop or two of blood could be withdrawn with a syringe.

The internal jugular was next exposed at about the level of the omo-hyoid and divided between two ligatures. The blocked sinus was then laid freely open and a clot rather more than an inch in length cleared out. The wound healed well, and the patient made a good recovery. Bennett lays especial stress upon his method of tying the jugular as low down as the omo-hyoid, in order to be well below the lower end of the clot, and thus avoid the possibility of ligaturing the clot, and running the risk of a portion of it becoming detached, and carried away to the lung.

*Chronic suppurative otitis media complicated with aneurism of the internal carotid artery.*

F. Marsh (*Birmingham Medical Review*, Feb., 1894). The patient was a delicate woman aged 27, and was admitted into the Queen's Hospital with a swelling in the region of the left ear and upper part of the left side of the neck. Eight years ago she had left facial paralysis attributed to cold. A few weeks later a purulent discharge from the left middle ear commenced, and she had been under treatment for this some years, during which time polypi had been twice removed. During the last twelve months there have occasionally been painful swellings in the left ear, which always completely subsided. A month before admission to hospital the swelling appeared again and has remained. Any exertion causes a temporary increase of it, and slight bleeding occurs from the meatus when the patient holds down her head.

On admission there was a tense circumscribed pulsatile swelling of an oval shape on the left side, measuring  $3\frac{1}{2}$  inches in the vertical and 3 in the horizontal direction, and extending upwards from the angle of the jaw to the level of the tragus. A distinct *bruit* was heard on auscultation.

The left external auditory meatus was almost occluded by the swelling. There was a considerable purulent discharge from the left middle ear and almost complete left facial paralysis.

The swelling was diagnosed as an aneurism of the internal carotid, probably caused by extension of the middle-ear inflammation to the coats of the vessel. Soon after admission the left common carotid artery was ligatured at the seat of election. When the ligature was tied, the pulsation in the tumour ceased, but returned feebly in a few minutes. The tumour gradually

hardened and pulsation decreased. When the patient was discharged, the swelling measured 3 inches in the vertical and 2 in the horizontal direction. She subsequently sent a good report of herself.

**Pritchard** (*Arch. of Otol.*, Jan. to April, 1893), writing on *Intracranial complications*, insists on the following systematic procedure in every case in which surgical operation is undertaken to relieve *cerebral symptoms secondary to ear suppuration*:—

(1) First thoroughly open the antrum and explore the mastoid cells.

(2) Failing to find sufficient evidence to account for the whole of the symptoms, the wound in the skull should be enlarged backwards so as to expose the middle and posterior fossæ above and below the lateral sinus, which should be explored with a hypodermic syringe. At the same time subdural abscesses must be carefully looked for.

(3) If a clot be found in the sinus, the internal jugular vein should now be tied, and the sinus opened and thoroughly cleared of its contents. If there is any suspicion of cerebral or cerebellar abscess, exploratory puncture may be made above and below the sinus, and the pus if found, evacuated.

Pritchard lays special stress upon the importance of exploring the mastoid cells on opening the antrum.

## II.—NEW REMEDIES.

A new antiseptic for the treatment of aural suppuration is much recommended by **Cozzolino** (*Annales des Maladies de l'Oreille*, Nov., 1893), which he terms *microcidine*. It consists of naphthol 13 per cent. and caustic soda. In purulent inflammation of the ear he employs it in warm solutions of a strength of 3 to 4 per cent. It is odourless, and is said to be ten times more antiseptic than carbolic acid, and twenty times more so than boric acid. It is soluble in alcohol.

**Szenes**, of Buda-Pest (*Internat. Med. Cong.*, Rome, 1894), described the result of his experience in the treatment of tympanic and meatal suppurations with the new antiseptics *europphen*, *alumnol*, *diaphtherin* and *antiseptin*. With not one of these agents did he succeed in diminishing the amount of suppurative discharge. They nearly all caused unpleasant burning sensations in the ear, and his conclusion regarding them, after a trial in eighty-six cases, was unfavourable.



## III.—NEW INSTRUMENTS.

**Barclay**, of St. Louis (*Journ. of Laryng., Rhin. and Otol.*, Dec., 1893), has designed a new speculum for operations in the depths of the external meatus. It consists of two parts—a tube and a handle. The tube represents the inner portion of the ordinary speculum divided at two-fifths of its distance from the outer rim. The handle is detachable, and is made in three forms: (1) Like a spoon handle, fixed to the tube dipper-shaped; (2) like an imperfect ring, or (3) like a split tailor's-thimble. By means of the handle, the instrument is held in place by the finger or thumb, the rest of the hand being free. By dispensing with that portion of the speculum which projects beyond the intertragal notch of the ear, this instrument allows a hand-rest for steadiness, and a maximum of shortening and of movement of instruments, in operations within the ear. Barclay's improvements in the shaft and handle of aural instruments for use with the new speculum were described in the "Year-Book" for 1894 (p. 405).

A *combined vapour inhaler, tympanum inflator, and nasal and aural insufflator* has been devised by **H. Paynter Slogett** (Sydney). (*Journal of Lar., Rhin. and Otol.*, Dec., 1893.) The apparatus consists of a hollow cylindrical case of thin metal in which the material intended for inhalation or insufflation is placed. One end of the case is applied to the nostril, the other is attached by means of indiarubber tubing to Politzer's bag. When required as an auto-inflator, the end of the tubing is fitted with a mouthpiece.

**Lake** (*Journ. of Laryngology*, Dec., 1893) describes a *new aural speculum*, consisting, as in Ferguson's vaginal speculum, of a silvered glass lining covered with hard rubber. The advantages claimed are: (1) Greater reflective power; (2) ability to use caustics through a bright speculum without injury to the surface; (3) with a good direct light, to be able to do without a reflector. They are to be had in three sizes, and are of the same shape as Politzer's.

An *apparatus for the gymnastics of the drum-head and ossicles* has been designed by **Kirchner**. (*Proceedings of the International Medical Congress, Rome, 1894, reported in Journ. of Lar., Rhin. and Otol.*) It consists of an indiarubber tube 45 cm. in length furnished with a gauze-covered tip to fit into the ear, and an olive-shaped mouthpiece, for the practice of rarefaction of the air in the external auditory meatus, and to bring about rhythmical movements of the drum.

In the middle of the tube is fixed a globe of strong glass about a centimetre and a half in diameter, in the cavity of which is a mass of cotton wool to serve as a filter, which can be renewed from time to time. The same effects as those obtained by Siegle's speculum or Delstanche's *raréfacteur* can be produced at a minimum cost.

*Magnifying aural speculum.*

**Macnaughton Jones** (*Lancet*, Nov., 1893) has devised an aural speculum in which a hinged clip is attached to the proximal end for the reception of a convex lens, so that a magnified view of the membrane may be readily obtained. Cousins has in the past devised similar instruments.

*Self-retaining aural speculum.*

**W. R. Stewart** (*Brit. Med. Journ.*, May 5, 1894) has devised a self-retaining speculum by dividing the blades of a Kramer's aural speculum vertically, shortening them, and attaching a spring to the proximal ends in the manner of a Thudichum's nasal dilator. The strength of the spring is insufficient to cause pain, and the instrument is described as extremely useful. (*Arch. Otol.*, July, 1894).

*New ear-screw for removal of foreign bodies.*

**Lautenbach** (*Med. News*, Jan. 27, 1894). The screw is double-headed—*i.e.* it is a two-headed screw. The pitch is considerable and the threads present an angle forward; the posterior surface of each thread is at right angles to the shaft. The screw and shaft are of hardened steel, the handle of ivory.

The slightest twist of the screw sends its two points into any substance ordinarily soft, such as wood. After making its way in it will not slip out.

*New aural furuncle knife.* **Dundas Grant** (*Proc. of Int. Med. Cong., Rome*). This consists of a short recurved double-edged bistoury about a quarter of an inch in length, at the extremity of a steel stem which can be fixed into any of the usual handles. Its advantage lies in the absence of risk of injury to the tympanum from the patient drawing away the head.

*Magnifying aural speculum suitable for operating.* **Dundas Grant** (*Proc. of Int. Med. Cong., Rome*, 1894) described an instrument, designed by himself, in the form of an ordinary ear speculum, over the external orifice of which is a magnifying lens attached by means of a hinge so that it can be raised out of the way if necessary, for the introduction of instruments or for other purposes. As much as possible of the under portion of the speculum and of the lens is cut away so as to admit of the

manipulation of suitably-curved probes, syringes, knives, etc., without interfering with the efficacy of the speculum.

#### IV.—NEW DIAGNOSTIC METHODS.

*Transillumination of the mastoid cells as a means of diagnosis of suppurative mastoiditis.* **G. W. Caldwell** (*New York Med. Journ.*, July 15, 1893). The experiment is based upon the fact that healthy mastoid cells are diaphanous, whilst pus is opaque; also upon the assumption that however much the mastoids of different individuals may vary, those of the same individual will coincide with each other in appearance under illumination. The apparatus required is a battery which will develop about ten volts—roughly speaking, a five-cell battery—regulated to light well, but not burn out; a two- or three-candle-power electric lamp of very small calibre, this being protected by thin rubber tubing fenestrated at one side and made to fit snugly at the meatus by a washer of larger tubing. In a perfectly dark room the lamp is inserted well into the external auditory meatus, the fenestra directed backwards, and the current made.

Instantly the healthy mastoid is illuminated with a ruddy glow, extending from the apex to the lateral sinus, and to the limits of the cells above. In certain cases, as when the meatus is small or painful, the process may be reversed, when the external auditory meatus and tympanum will be illuminated by the lamp at the mastoid process.

By placing the lamp on different portions of the mastoid, the particular region in which a pathological process exists can be demonstrated. Where pus is present the glow is absent, and the cells dark. Comparison with the healthy side renders the diagnosis complete.

The method is claimed to be specially useful where there are no external mastoid signs nor discharge from the meatus, and to be easy of application, painless, and scientifically accurate.

*Percussion of the mastoid process.* **Koerner and von Wild** (*Arch. of Otol.*, Jan., 1894) use a small metal hammer for the percussion, which must always be comparative. The striking surface is 8 mm. broad and slightly convex. The handle is 16 cm. long, and is made of a thin tapering piece of whalebone. With this hammer, by pretty forcible percussion over normal bone covered by thin skin, a loud, clear, osseous tone can be obtained.

The space available is limited to a small spot behind the border of the auricle.



A case is reported in which suppuration of the mastoid was present  $\frac{1}{2}$  a cm. below the surface of the bone, as proved at the operation subsequently, and in which, in the absence of pain, fever, and swelling, a diminution of the normal osseous resonance over the mastoid gave the first certain knowledge of a diseased focus within the bone.

The authors sum up as follows :—

(1) By means of Lücke's bone percussion it is possible to recognise a central otitis of the mastoid at a time when the disease betrays itself by no externally perceptible signs.

(2) It is the disease of the bone itself that alters the resonance, and not the obliteration of its air spaces.

**Moos** (*ibid.*), in commenting upon the foregoing paper, remarks that, with regard to the diagnostic value of percussion, only a *positive* result is conclusive, a negative result is not so. That is to say, severe affection of the mastoid can exist with no lessening of the resonance.

# DISEASES OF THE THROAT AND NOSE.

BY BARCLAY J. BARON, M.B. EDIN.,

*Laryngologist and Rhinologist to the Bristol General Hospital, and Lecturer on  
Pathology and Morbid Anatomy at the Bristol Medical School.*

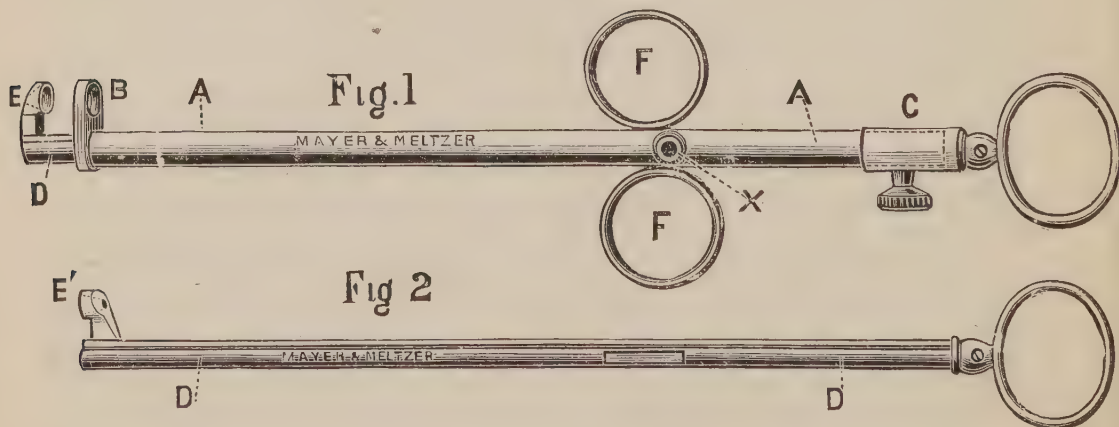
## I.—TONSILS.

### 1. Guaiacol as a topical application in acute tonsillitis.

Raymond (*Med. Record*, March 24, 1894) applies guaiacol, either pure or in the form of a 50 per cent. solution in almond oil, by means of a swab or an atomiser, and finds that it is of value. The application caused some smarting which cocaine did not lessen.

### 2. A new tonsil punch.

Kelly (*Journ. of Laryngol., Rhinol. and Otol.*, Aug., 1894) thus describes this instrument: It consists essentially of a grooved body and a central sliding part, the latter carrying a punch which works into a bolster fixed on the former. To allow of more delicate manipulation two punches—facing in opposite directions and each with its own central bar—have been made.



For convenience they may be termed respectively the pulling and pushing punch. The body of the instrument is adapted for either. Fig. 1 represents the pulling punch complete; A A is the body at one end of which the bolster (B) is fixed, while over the

other the thumb-piece (c) is held by a screw; D is the central sliding bar carrying the punch (E), and into which the finger rings (F F) are screwed. Fig. 2 represents the sliding part of the pushing punch. To change the pulling to the pushing punch the operator must remove C, unscrew F F, and withdraw D; then slide D D into A A, and screw F F into the bosses (x), one of which is on each side of the body. The pushing punch is now complete. The changing of the punches may be effected in half a minute. The cases in which the tonsil punch may be used with advantage are those unsuitable for tonsillotomy, and in which hitherto the galvano-cautery has been indicated. They are as follows:—1. When the tonsils are enlarged antero-posteriorly, and project but slightly, if at all, beyond the pillars of the fauces. It is naturally assumed here, as also in the cases mentioned below, that the condition of the gland is giving rise to symptoms which call for its reduction—an enlargement *per se* does not justify interference. 2. When the anterior pillar of the fauces is stretched over the tonsil and there is danger of wounding it with the tonsillotome. 3. When, after tonsillotomy, the remaining portion of the gland is the seat of frequently recurring attacks of inflammation. 4. When there is chronic lacunar tonsillitis, and the gland is not sufficiently enlarged for tonsillotomy, the punch may be used alone, or together with discission. 5. When tonsillotomy is indicated, but the patient is an adult and excessively nervous, the punch may then be used with the assurance that the local anæsthesia induced by cocaine will render its application absolutely painless. In all the above cases the tonsil punch will produce the desired result more rapidly, and with less subsequent pain and liability to severe inflammatory reaction than the galvano-cautery.

## II.—PHARYNX.

### 3. Antitoxin in diphtheria.

Full details of the methods and results of the antitoxin treatment in diphtheria will be found under “Infectious Diseases.”

### 4. Antidiphtherin in diphtheria.

Klebs (Abs. in *Journ. of Laryngol., Rhinol. and Otol.*, July, 1894) states that one cubic centimetre of double concentration of antidiphtherin is able to protect 20 cubic centimetres agar glycerine and glycerine peptone bouillon against cultures of diphtheria bacilli.

Zappert (*ibid.*, July, 1894) believes it to be useless in diphtheria. Vulpius (*Deutsch. med. Woch.*, No. 6, 1894) reports twenty



cases from the Heidelberg Clinic with 50 per cent. of deaths, and believes that it has no specific influence.

### **5. Calomel fumigations in diphtheria.**

Brown (*Med. News*, May 12, 1894) has increased his percentage of recovery in cases of laryngeal diphtheria from 35.4 to 47.6 since adopting this method. Northrup (*Brit. Med. Journ.*, Dec. 29, 1894) read a valuable paper before the Bristol meeting of the British Medical Association in favour of this method.

### **6. The prophylaxis of diphtheria.**

Bergmann (Abs. in *Journ. of Laryngol.*, July, 1894) has had made pastilles containing 2 milligrammes of thymol and 2 centigrammes of benzoate of soda in each, and believes them to be valuable as a prophylactic when allowed to dissolve slowly in the mouth.

## **III.—LARYNX.**

### **7. The classification and therapeutics of pachydermia laryngis.**

Chiari (*Journ. of Laryngol., Rhinol. and Otol.*, May, 1894) distinguishes different kinds of pachydermia, each of which needs its own appropriate treatment.

(1) The diffuse inter-arytenoid form. Unless well-marked localised thickening occur ("singer's nodule"), it must be treated as a mere concomitant of chronic catarrh. The forceps or applications of nitrate of silver are necessary if the nodular condition exists.

(2) The typical form affecting the vocal processes. Electrolysis is good here, a current of 10 to 12 milliampères being applied for three to five minutes at a sitting.

(3) Secondary or accessory pachydermia accompanying tubercle, syphilis, lupus or chronic perichondritis. Electrolysis applied by the bipolar method, the current strength being 10 to 15 milliampères, is of value in addition to appropriate specific treatment.

### **8. Intra-laryngeal injections in the treatment of disease of the larynx, trachea and bronchi.**

Bronner (*Journ. of Laryngol., Rhinol. and Otol.*, June, 1894) read this paper at the Rome Congress, and he again recommends this method of administering various drugs. For the relief of cough, cocaine and menthol in paroline are of value. Iodoform, nitrate of silver, lactic acid, salol and euophen are also useful.

In tuberculous laryngitis, 5 to 20 per cent. solutions of menthol, to which may be added 2 per cent. of guaiacol or 20 to 30 per cent. of salol, are useful; also lactic acid up to 30 per cent. strength, balsam of Peru and eucalyptus dissolved in chloroform and olive oil, any of which combinations may be injected at the same time

as curetting or brushing with lactic acid. In chronic laryngo-tracheitis, laryngitis, and atrophic laryngeal catarrh, 1 to 5 per cent. solutions of nitrate of silver, or 5 to 30 per cent. solutions of lactic acid are benefited.

Syringes ought to be made of such a material as permits of their being sterilised, and only the stronger remedies need be injected under the guidance of the mirror, patients easily learning to apply the others.

Jay (*ibid.*, July, 1894) speaks well of the injection of 5 cubic centimetres of a 5 per cent. menthol solution in oil once daily in pulmonary tuberculosis.

### 9. Laryngectomy.

An interesting case of laryngectomy by a new method is related by Carmalt (*Journ. of Laryngol.*, July, 1894), who thus describes the operative technique:—

Incision in median line from hyoid bone to sternum; low tracheotomy; Trendelenburg sponge canula; cross incision from top of linear cut, outwards to edges of sterno-mastoid muscles; larynx laid bare, and bleeding checked; a stout bistoury passed behind larynx, between it and the trachea, and by a strong anterior cut liberated from the latter; larynx hooked up, and dissected out from below upwards, the anterior wall of the œsophagus being carefully followed until the level of the arytenoid cartilages was reached, when the dissection was so made as to cut across in such a way that a part of the mucous membrane of the arytenoids and ary-epiglottic fold was preserved; epiglottis then cut across, larynx freed, and all bleeding checked; epiglottis then sewed on to the anterior wall of the œsophagus, thus closing in the pharyngeal cavity, and cutting off all communication from the wound in the neck. Subsequently the latter was sewn up tight, except enough of the lower part of the median incision to allow of taking in the upper rings of the trachea, which latter were sewn into connection with skin flaps, making a circular opening, turned upwards and forwards. Wounds dressed with plain dry dressing; no tubes left in trachea; no bad sequelæ from operation, which lasted from two to three hours.

Subsequent healing of the wound followed without complications, except a large stitch abscess above and at the back of the trachea, which healed in a few days. The temperature rose to 101° F. on the second day, and gave no trouble thereafter. The internal wound at the base of the epiglottis healed by first intention, and the patient could swallow (sterilised) water from the first with ease. At the end of the week he could take fluid food of all kinds (tube meanwhile), and at the end of another week was

placed upon full hospital diet. By this time both internal and external wounds were in excellent condition. The man could make no audible sound at first, but later, hissing consonants were perceived, and now (June, 1894) single words and brief phrases can be distinctly understood, even with the back turned, so that lip-reading is eliminated. The voice is as yet only a whisper, but it has gained so much in strength as to promise more. He is now working at the carpenter's trade, and most of the time wears a tube in the trachea.

### 10. The surgical treatment of laryngeal phthisis.

Gouguenheim (*Journ. of Laryngol., Rhinol. and Otol.*, Aug., 1894) read a paper on this subject before the Rome Congress.

He uses concurrently three instruments, viz., his "*emporte-pièce*," the simple curette, and the cutting forceps, in the surgical treatment of laryngeal phthisis.

He uses his "*emporte-pièce*" or Krause's double curette in order to resect the arytenoid region where dysphagia is present with pronounced arytenoid infiltration. He has performed arytenoidectomy on fifty-eight patients, of whom twenty-five affirmed themselves cured, and thirty were improved.

The technique of the operation is as follows:—

Preliminary anæsthesia is commonly made with a 33 per cent. solution of hydrochlorate of cocaine. That of the pharynx and base of the tongue is made with the greatest care, so that the drawing of the tongue out of the mouth may be easy, and the application of the laryngeal mirror may be easily tolerated. Then the anterior posterior "*emporte-pièce*" is placed with one branch behind the arytenoid region and the other branch within the larynx. This movement should be guided with care, and when certain that the diseased portion is well seized between the two teeth of the instrument, it only remains to press strongly to resect the tissues, which is generally easy if the instrument cuts well. Consecutive hæmorrhage is but slight, and the pain of the operation is almost *nil*, and it is sometimes possible to operate immediately afterwards on the other side; as soon as the forceps are withdrawn, the cavity of the "*emporte-pièce*" is seen to be covered with a mass of tissue. After the operation the patient swallows ice for a certain time—fifteen to thirty minutes—and hæmorrhage is very quickly arrested. It has happened to Gouguenheim more than once to practise these operations on patients outside, without having ever had any respiratory trouble, and he is convinced of having been able to avoid tracheotomy in some cases. I have, however, always preferred to have the patients in hospital in order to make frequent daily swabbings,



which I find indispensable. I have for two or three years employed camphorated naphthol (two parts of camphor and one of naphthol  $\beta$ ) to brush the wound, and I perform the swabbings daily.

Next day after the operation, generally, dysphagia is better, and it disappears rapidly enough to permit feeding and appropriate medication of the patient.

Nothing is more prompt than the cicatrisation of these wounds; at the end of two weeks, rarely more, the wounds no longer suppurate, and cicatrisation follows in two or three weeks at most. The site of the wound becomes slightly red, and this is of nearly normal colour; with the laryngoscope it is difficult to see the cicatricial tissue. Rarely do the patients succumb a little while after operation, at least when the tubercular cachexia is not too advanced, and even in cases of this kind, where Gouguenheim has intervened, the relief has been very clear, and the sufferings of the unhappy patient have ended.

It is not commonly necessary to have recourse to several operations, but we may sometimes be obliged to resect some pieces floating in the larynx, which is easy to do with cutting forceps.

For thickenings and outgrowths of other parts of the larynx, curettes that cut in different directions are used. Twenty-seven patients were so treated; of these the voice was re-established in seven, and in ten others marked improvement was noticed. All the patients treated had pulmonary lesions in addition to the affection of the larynx.

In the discussion that ensued, **Sokolowski** suggested thyrotomy with thorough extirpation of tuberculised parts where the general condition is good and surgical interference is considered necessary. He spoke well of parachlorphenol as a drug to be locally applied. **Massei** spoke well of the topical application of phenol sulphoricinate; **Trifiletti** considers this drug almost a specific where the vocal cords are specially affected. He makes a 20 to 30 per cent. solution of phenol in sulphoricinate of soda, and applies it to the diseased larynx.

**Ruault** also praised this drug.

**Egidi** advocated tracheotomy in preference to all surgical measures, as it gives rest to the parts.

**Chiari** recommended electrolysis for outgrowths, reserving surgical measures for cases in which stenosis and dysphagia were prominent.

**Heryng** (*Journ. of Laryngol., Rhinol. and Otol.*, April, May, and August, 1894) discusses the dangers and drawbacks to the

energetic operative treatment of laryngeal tuberculosis under three headings :—

1. The painfulness of the proceedings.

This is so greatly lessened by the application of cocaine that most patients can bear it. Submucous application of cocaine is rarely necessary. The pain caused by the operation does not usually pass off for two days.

2. The chances of severe hæmorrhage.

Two cases in 270 cases operated on bled freely, and both were instances of removal of tumour-like infiltrations of the ventricular band.

Prolonged bleeding, which was noticed twice after removal of infiltration from the anterior surface of the epiglottis was checked by painting the epiglottis with a 20 per cent. solution of cocaine, removing with a wool pledget all traces of clotted blood, and applying to the bleeding spot a mixture of equal parts of liquor ferri perchlor., and an 80 per cent. solution of lactic acid.

The galvano-cautery or electrolysis is advisable for these growths of the ventricular bands.

If all the diseased parts are not removed by the curette, the use of the above mixture of iron and lactic acid solution in order to prevent secondary hæmorrhage and to promote healing, is advisable.

3. The possibility of a general tuberculous affection in consequence of surgical measures carried out in tissues that have undergone tubercular degeneration. This Heryng has never seen although it is described as having taken place by other observers.

Superficial tubercular ulcers of the vocal cords, or deeper but isolated ulcerations of the epiglottis, false cords, or arytenoid region, even though they be covered or surrounded by soft granulations, are most quickly excited to cicatrization by 25 to 80 per cent. solutions of lactic acid.

Pyoktanin (1 to 2 per cent. solution) is valuable in order to prevent inflammation of parts on which operation has been done. The applications ought to be made twice daily.

Hajek (*Journ. of Laryngol., Rhinol. and Otol.*, July, 1894) has removed the epiglottis in one case in which it was extensively ulcerated. Also the right ventricular band was extirpated with Krause's curette and the wounds were treated with lactic acid. Complete cure of the larynx and lung ensued.

## **11. Indications for topical treatment in laryngeal tuberculosis. .**

Lennox Browne (*Journ. of Laryngol., Rhinol. and Otol.*, April,

1894) publishes the following table, which includes his own cases and those furnished by other observers.

*Treatment of laryngeal tuberculosis in relation to pulmonary disease.*

Pulmonary Symptoms.	Cured.	Improved.	Not Improved.	Died.	Total.
None - - -	2	7	5	1	15
Slight (one lung) -	6	16	1	1	24
Severe - - -	1	8	6	16	31
Both lungs involved	0	3	12	17	32
	9	34	24	35	102

He believes that menthol, with or without iodol, used as a spray gives the best results in the pre-ulcerative stage by promoting resolution where hyperæmia is present, and by stimulating the capillary circulation in anæmic conditions. He also thinks that sessile new growth in the interarytenoid region is prevented by their use.

An ethereal solution of aristol allays excessive pain, cocaine not being advisable except as a local anæsthetic before curetting, or the application of lactic acid, or in advanced cases to relieve dysphagia temporarily.

For acute dysphagia he uses a paint composed of compound tincture of benzoin, compound tincture of camphor, and tincture of belladonna mixed with the yolk of an egg, immediately before food is to be taken. He doubts the propriety of removing the diseased arytenoids as Gouguenheim does, nor is he in favour of tracheotomy, since the functional rest thereby obtained is more than counterbalanced by the risk of irritation of the canula, and by the difficulty of removing pulmonary secretions by coughing.

## **12. Pilocarpin in the treatment of croup and all croupous diseases.**

Sziklai (*Journ. of Laryngol., Rhinol. and Otol.*, July, 1894) read this paper at the Rome Congress. After two years' experience he considers it to be a certain specific in all diseases characterised by coagulation of an exudation poured out from a mucous membrane. It is said to act by promoting a free secretion of mucus under the false membrane, which is thus thrown off. It also robs the transudation of its fibrin, and therefore



it does not re-form, and relapse has never been seen after its administration.

The doses given are large, *e.g.* :

Up to 1 year	$\frac{1}{2}$	to $\frac{1}{3}$	gr. pilocarpin per diem.
From 1 to 3 years	$\frac{1}{3}$	to $\frac{1}{2}$	„ „ „
„ 3 to 6	„	$\frac{2}{3}$	„ „ „
„ 6 to 10	„	$\frac{3}{4}$	„ „ „
„ 10 to 15	„	$\frac{7}{8}$ to 1	„ „ „
Adults	„	$1\frac{1}{8}$ to $1\frac{1}{2}$	„ „ „

His conclusions are as follow :

1. Pilocarpin is a specific for croup, in the widest sense of that term ; therefore, for all croupous diseases, *e.g.* croupous laryngitis, croupous bronchitis, croupous pneumonia, croupous nephritis, croupous cystitis, &c. &c.

2. Its action commences at once. In laryngitis crouposa cure is to be obtained in a few hours, in pneumonia crouposa in two or three days.

3. It is indifferent whether it is taken by the mouth or subcutaneously injected ; also when applied as suppositories or pessaries, the same result is certain.

4. In urgent cases, with imminent danger to life, *e.g.* in an advanced stage of laryngitis crouposa, subcutaneous injection is to be preferred to internal administration.

5. By pilocarpin not only is the duration of the disease notably shortened, but the mortality is reduced to *nil*.

6. In suitable cases, given early enough, it has a preventive action.

7. It can be given up to twice the official dose, without any ill-effects.

#### IV.—NOSE AND NASO-PHARYNX.

##### 13. The treatment of vertical deviations of the nasal septum without thickening.

Botey (*Journ. of Laryngol., Rhinol. and Otol.*, June, 1894) read a paper on this subject at the Rome Congress.

He generally employs electrolysis for horizontal inferior deviations with thickening, and cutting forceps for spurs. In vertical deviations it is only the quadrangular cartilage that is affected, and there is scarcely ever any thickening, and therefore the destruction of the projecting portion often leads to perforation.

The replacement of the deviated septum is brought about by dislocating the inferior insertion of the cartilaginous septum, and at the same time resecting a small portion of the septum.

The technique of the operation is as follows :—

“I commence by anæsthetising with a 20 per cent. solution of cocaine by placing tampons of wool on the region to be operated upon for eight to ten minutes. I then make a horizontal incision from the point of junction of the septum with the floor of the nasal fossæ as long as possible, and on the side of the nasal fossæ corresponding to the concavity—*i.e.* in the largest nasal fossa, and as far as the commencement of this concavity. This incision ought to take in all, or nearly all, of the inferior insertion of the cartilaginous septum, respecting, however, the mucous membrane of the opposite side.

“I then make three vertical incisions over the membrane from the vault to the floor of the fossa. These are deep and through the mucous membrane, the perichondrium and the cartilage, but care must be taken not to penetrate into the opposite side, which is sometimes difficult to avoid—the first vertical incision over the most distant point where the vertical deviation commences, the second over the centre of the concavity, and the third, which is sometimes useless, over the anterior part of the cartilaginous septum, some millimetres behind the point of junction of this with the lobule of the nose and the sub-septum. I then bare the mucous membrane and the perichondrium of the triangular flap formed by the vertical, central and horizontal incisions, and also the cartilage to a sufficient extent, with small curved scissors. I resect a portion of cartilage, large or small according to the case, on the posterior edge of the vertical incision, and another small portion on the inferior edge which touches the septum, pushing the septum through the other fossa with a plane spatula to facilitate operation.

“I then replace the flap of mucous membrane and mobilise the septum through the other fossa, which is easily replaced, as it is broken by the vertical incisions into two quadrangular segments which are juxtaposed on the same vertical plane. The inferior edge of the septum is also displaced, and directed on the median plane. An iodoform gauze tampon suffices to maintain the parts in position and contact without suturing.

“The vertical anterior incision serves to expose the anterior extremity of the septal cartilage, which sometimes makes, especially after its replacement, a pretty evident projection into the vestibule. When, after having exposed a small portion of these two faces, a small portion can be removed with scissors, this perfects the operation from an æsthetic point of view.

“At the end of twenty-four hours I remove the first tampon, which is soiled by the blood and mucus, for hæmorrhage often

much impedes the operation. This tampon is replaced by another, which is removed after forty-eight hours, and this is repeated once or twice afterwards. Iodoform insufflations for a few days then suffice, and after the second or third tampon the wounds are already united. There is then no perforation if the mucous membrane of the opposite side is preserved, even when this has been pierced with the bistoury, which is very easily done. But if a small perforation has unhappily occurred, its importance will not be great, provided we have obtained a good replacement of the cartilaginous septum."

**14. Comparison between electrolysis and other methods of treatment for the destruction of deviations and spurs of the nasal septum.**

Moure (*Journ. of Laryngol., Rhinol. and Otol.*, May, 1894) uses steel needles insulated to near their points, employing the bipolar method, the negative pole being inserted over the centre of the spur and the positive pole outside or above this one. The intensity of the current should vary from 18 to 25 milliampères and last from 12 to 15 minutes according to the hardness of the growth. One sitting is often sufficient to destroy the spur, and during the operation it is well to watch the opposite nostril, and if gas be seen in it, the electrolysis is being carried beyond the desired point. The advantages are said to be freedom from hæmorrhage and almost entire freedom from pain.

**15. Nasal polypus: its association with ethmoiditis, and its treatment by resection of the middle turbinated body.**

Casselberry (Rep. in *Journ. of Laryngol., Rhinol. and Otol.*, July, 1894) read a paper on this subject before the American Laryngological Association, in May, 1894.

He distinguishes five types:—

1. With hypertrophic rhinitis.
2. With simple myxomatous ethmoiditis.
3. With vaso-motor ethmoiditis.
4. With suppurative ethmoiditis.
5. With necrosing ethmoiditis.

Only five out of forty cases showed any signs of necrosis of bone. The middle turbinated bone can be resected in pieces, and not all at one sitting, by means of curved serrated scissors, the snare and sharp forceps, and the operation is of much value. The majority of those who discussed the paper was in favour of dealing with the middle turbinated bone in chronic recurrence of polypi.



## 16. Treatment of suppuration in the maxillary sinus.

Garel (*Journ. of Laryngol., Rhinol. and Otol.*, Aug., 1894) draws the following conclusions in his paper, read at the Rome Congress, on this subject:—

1. Irrigation by the natural orifice is at the same time the most expeditious therapeutic method, and the first that ought to be tried. Cure is often obtained in less than a week.

2. In the choice of method it is useless to try to penetrate by the most dependent part, because, as our statistics show, cases which resist irrigation by the natural orifice are equally rebellious to irrigation practised through artificial orifices in the most dependent parts.

3. When catheterisation by the natural orifice is impossible, we must have recourse to an artificial opening to enable the patient to irrigate for himself as may be required for several months. In this case our choice must be fixed on the inferior meatus.

4. Alveolar perforation ought only to be thought of in the last instance, when we cannot use the other methods. We make an exception in the infrequent cases in which the extraction of a tooth forces itself on us before any other intervention.

5. Lastly, opening by the canine fossa and curetting are to be reserved exclusively for rebellious cases which have resisted all treatment by irrigation.

6. As regards the nature of the liquid to be employed, boric acid suffices in all cases, and other substances, *e.g.* carbolic acid, iodoform, etc., have given us no better results.

Griffin (*Med. Record*, March 31, 1894) uses peroxide of hydrogen either pure or diluted, as a cleansing solution, and then injects a solution of iodoform in paroleine (grs. x ad ʒ j), which rapidly reduces the suppuration.

## 17. Treatment of suppuration in the ethmoidal sinuses.

Greville Macdonald, at the Bristol Meeting of the British Med. Assoc. (Rep. in *Journ. of Laryngol., Rhinol. and Otol.*, Oct., 1894), drew attention to a plan of cleansing the nose in these cases which had been of service to him. The patient allows the head to hang backwards over the end of a couch, so as to assume an inverted position, and a 5 per cent. solution of boro-glyceride is poured into the anterior nares, until the nasal cavities are filled with the fluid. Some patients can keep the head in this position for twenty minutes, although headache sometimes follows, and the summit of the nose is thus thoroughly cleansed.

Of late he has applied a 25 per cent. solution of peroxide of hydrogen, as supplied by McKesson, under the name of "pyrozone," by means of a cotton wool mop on a probe, which has a beneficial effect on the condition, and is not very irritating.

### **18. Oil of mustard in ozæna.**

Kyle (*Med. News*, May 5, 1894) applies a solution of oil of mustard in benzoinol or paroleine (6 to 8 drops to 3 j) to the nostrils by means of an atomiser after they have been cleansed and dried : the stimulating effect is good.

### **19. A new apparatus for the treatment of nasal hæmorrhage.**

Dionisio described this instrument at the Rome Congress (Rep. in *Journ. of Laryngol., Rhinol and Otol.*, July, 1894).

The apparatus consists of an indiarubber bag, elliptical in section, larger in its anterior portion, narrow in the middle, and dilated again in the posterior part which communicates with the outer air through a little tube. The walls of the bag are thinner in the anterior part, thicker in the middle and posterior part. A thin metal canula penetrates the bag, and on to the part of the canula which remains outside, a thick-walled rubber tube is pushed so as to cover the external part of the canula, in such a way that the rubber tube adheres hermetically to it.

In order to introduce the apparatus into the nasal cavity, twist the anterior part of the bag around the canula, drawing off the air from the tube by suction, and shut the latter with a small spring clamp. The air being rarefied, the walls of the rubber bag will then remain twisted and wrapped round the canula. The anterior portion of the instrument has then a smaller diameter than an ordinary Bellocq's sound. The apparatus having been disinfected and anointed with an antiseptic ointment, the point is introduced into the nostrils and pushed on until two-thirds of it has penetrated. The clamp is then removed from the tube, and air or liquid is pumped in with a syringe till the rubber bag is so distended as hermetically to occlude the posterior choana and the anterior orifice. It is useless to pump in more liquid or air than is contained in the syringe ; the clamp is again applied to the tube, and for greater security it can be blocked with a small obturator. After a lapse of time varying from one to twelve hours, the compression of the plug may be gradually diminished by letting out some of the liquid or air. For greater security the collapsed instrument should remain in the nasal cavity one or two hours longer, and then, if no hæmorrhage appears, it can be removed.

When only used at long intervals, it is well to keep the walls

of this bag slightly distended. In this way the indiarubber sac may last for years, and should it get broken the canula can easily be changed into a new one.

## 20. Treatment of rhinoscleroma by rhinosclerin.

Pawlowsky (*Deutsch. med. Woch.*, Nos. 13 and 14, 1894. Abs. in *Journ. of Laryngol., Rhinol. and Otol.*, Sept. 1894) injected a glycerine extract of the rhinoscleroma bacillus in two cases of this disease, and in both he obtained a local reaction. After several injections the disease ceased to make progress and remained stationary for periods of six and twelve months respectively in the two patients.

## 21. A new method of treatment of chronic naso-pharyngeal catarrh.

Bates (*Med. News*, Jan. 20, 1894) injects sweet oil two or three times a week through the naso-lachrymal duct, with good results.

## 22. Vibratory massage in diseases of the upper air passages.

Braun read a paper on this subject at the Rome Congress (Rep. in *Journ. of Laryngol., Rhinol. and Otol.*, May, 1894). He uses copper probes of three sizes with cotton wool wrapped round their ends, and, a 10 to 20 solution of cocaine having been first applied, the probe is used, after having been dipped in a solution of menthol or balsam of Peru, or a 1 in 1,000 solution of  $\text{Hg Cl}_2$ , or alcohol, or lanoline, or iodoglycerine. About fourteen probes are used to "vibrate" the nose and naso-pharynx in a case of ozæna, each vibration lasting from a quarter of a second to a minute, and a fresh probe is used for each. Braun claims to have cured sixty-two cases of this disease, the number of sittings varying from four to two hundred and fifty. He also speaks very highly of the method in cases of chronic naso-pharyngeal and laryngeal catarrh, glossodynia, hay fever, nasal asthma, and neuralgia of the trigeminal nerve, and one case of acute inflammatory laryngeal oedema was rapidly cured by it.

Dionisio described a new instrument which he uses for "vibrating" the nasal mucous membrane. It consists of an indiarubber bag introduced into the nostril and blown up; this communicates with an air chamber, in which, by means of a piston, rapid alteration of pressure in the bag can be produced, and so rapid "vibration" of the nose.

Schmidt, Massucci, and Laker approved of the method, but Chiari believed ordinary painting to be quite as effectual.



## V.—VARIA.

**23. Treatment of hay fever.**

**Tyrrell** (*Journ. of Laryngol., Rhinol. and Otol.*, Sept., 1894) finds that salicylate of soda, in a 15-grain dose taken before breakfast, dissipates a threatened attack.

**Bishop** (*Med. News*, Feb., 1894), believing the complaint to be due to excess of uric acid in the blood, administers acid sulphuric. dil., in 10- to 30-drop dose three times a day, and also acid phosphate of soda in doses of one or two teaspoonfuls taken directly after waking in the morning.

As a prophylactic, salicylate or phosphate of soda is given for forty days before the attack, and is said to be of some value.

**24. Electrolysis in goitre.**

**Dickson** (*Canadian Practitioner*, Aug. 16, 1894) places the positive electrode behind the shoulders. At the site of puncture a solution of 5 per cent. cocaine and 6 per cent. antipyrin should be injected hypodermically. A steel needle insulated to within two inches or less of its point is inserted from the isthmus into the enlarged lobe, and the current slowly turned on. He starts with 10 milliamperes for ten minutes, and at later sittings may go up to 50 milliamperes or more. The sittings take place weekly, and the wound should be dressed with iodoform and boracic acid.

Cystic goitres are most easily treated; in these the cyst should be aspirated and emptied, and then filled up with a saline solution. The current of 30 milliamperes may be used for fifteen to twenty minutes. When the current is turned off, the sac should be emptied, and in some cases two or three sittings will cure.

# PUBLIC HEALTH AND HYGIENE.

BY B. ARTHUR WHITELEGGE, M.D.,

*Medical Officer of Health to the West Riding County Council.*

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Two important Acts of Parliament have been passed during the year under review. "The Local Government Act, 1894" brings into existence Parish Councils in rural districts, and arms them with limited powers of initiative in sanitary matters, together with the right of making formal representations to the executive sanitary authority—that is, to the Rural District Council—and of lodging a complaint with the County Council in the event of default. In future, urban and rural sanitary authorities will be termed urban and rural district councils. The latter are brought into closer relation with county and parish councils, but otherwise their position is not much altered except in name. Medical officers of health are ineligible for membership of district councils which they serve, and similarly with poor-law medical officers and boards of guardians.

Lord Thring's "Isolation Hospitals Act," which became law at the end of 1893, enables provincial county councils to form hospital districts, by combining two or more local areas if need be, for the purpose of establishing hospitals for cases of infectious diseases; and to contribute to the cost out of county funds. Among its indirect benefits are the substitution of the convenient name "isolation hospital" for the unfortunate term "infectious hospital," which was rapidly coming into general use; and the establishment of the important principle that the cost of isolation in such hospitals is to be borne by the public and not by the patient.

"The Factories and Workshops Bill," which, *inter alia*, sought to extend the principle of compulsory notification to cases of anthrax and poisoning by lead, arsenic or phosphorus, where due to industrial processes, was not carried through Parliament. A further list of industries (including flax mills and linen factories, the manufacture of red orange and yellow lead, lead smelting, the tinning and enamelling of iron hollow ware and electric accumulator works) have been added to those which are certified

as dangerous by the Home Secretary, and in which special regulations are made for the protection of the health of the workers.

Plumbism due to the use of drinking water is a public danger to which increased attention has been given during the past year. Many public supplies have been found to attack lead; principally, of course, soft waters from moorland sources, and especially, but not exclusively, those which have an acid reaction. A steadily increasing number of water authorities are now taking measures on a large scale to remove the plumbo-solvent action, usually by chemical treatment such as the addition of chalk or carbonate of soda, or by filtration through sand or artificial media. In several instances the entire efficacy of the process adopted has been rather too hastily assumed on *à priori* grounds, and there still remain many water supplies which are confidently affirmed to be free from action on lead, upon no better evidence than the fact that no prevalence of lead poisoning has been observed. Fortunately it is an easy matter to verify the absence of lead in a sample of water. The most convenient test is to fill a tall glass with the water, and to place a drop of a solution of bichromate of potash (about one grain to the ounce) on the surface. As it sinks down, it leaves a quite unmistakable yellowish cloud if any trace of lead be present; provided that the water is neutral in reaction or nearly so. If lead be found in the water, it is safest to replace the lead pipes by glass-lined or tin-lined iron pipes. Less complete safety may be secured by the use of *new* filters containing animal charcoal, or by running off the water before drawing any for drinking or cooking purposes.

Influenza became epidemic for the fifth time since its apparent arrival in 1889, during the winter months of 1893-4, varying much in its clinical characters in different localities, and sometimes difficulty arose in deciding where influenza ended and epidemic pneumonia, sore-throat, rheumatism, ague, or other malady began. But apart from this there have been many outbreaks of unusual character recorded during the year without any apparent connection with influenza. Thus several localised epidemics of muscular rheumatism were observed during the summer. In September, 1894, there appeared among the inmates of the Richmond Asylum at Dublin, a malady, the symptoms of which were unlike those of any of the ordinary diseases of this country, but resembled beri-beri. There was no pyrexia, but early and extensive œdema and, later, peripheral neuritis. Ataxic symptoms followed. Out of about 150 cases there were



nineteen deaths. Overcrowding has been assigned as one of the conditions responsible for the outbreak. The epidemic skin disease to which Dr. Savill drew attention in 1891, again made its appearance in some of the metropolitan workhouse infirmaries in the summer of 1894. Its epidemic course among the inmates of these institutions leaves little doubt of its infectious character, and in at least one instance there was suspicion of milk-infection, but clinically it approaches closely to eczema, and as cases have been met with among the outside public, it is probable that it occurs unrecognised in a sporadic form. Among the workhouse cases were some in which there was no apparent skin lesion, but only an obscure febrile condition with prostration and vomiting. Epidemic pneumonia, which seems to have a preference for the eastern side of England, was again recorded in more than one village during the year.

In the autumn of 1893 a disease which clinically and bacteriologically seemed indistinguishable from Asiatic cholera made its appearance in many scattered localities, sometimes attacking one person only, sometimes a group. In the latter event the order and history often pointed clearly to infection of the later victims by the first, but the origin of the outbreaks remained in most instances unexplained by any proof of convection from known cholera centres. Not all the attacks bacteriologically verified were fatal. No doubt the majority of them would, had not cholera been so near at hand, have been ascribed to "English cholera" or "choleraic diarrhœa," as many closely resembling them were in earlier years, without thought of bacteriological investigation. To add to the obscurity which surrounds the ætiology of these local outbreaks, they were frequently preceded or accompanied by prevalence of diarrhœa, and sometimes of enteric fever also.

Small-pox showed further indication of reviving activity at several different centres, more particularly among the manufacturing towns. Some of the local epidemics, at Bradford and Leicester, for example, afforded fresh evidence in support of the view that small-pox, unlike other infectious diseases which are usually aggregated in hospitals, has a tendency to diffusion from the hospital as from a focus; and that this diffusion cannot be explained by lines of traffic, but requires the hypothesis of aerial convection of the germs of disease. Owing to the recognition of this danger, attempts have been made in some of the newer small-pox hospitals to "cremate" the air passing from the wards, but in a recent report to the Local Government Board, Dr. Barry has shown that up to the present time little success has been achieved in this direction. The closer attention which is now

given to these questions has brought prominently into notice the frequency with which the infection of small-pox is carried from town to town by vagrants. It is scarcely necessary to say that the records of each local epidemic reveal the usual disparity between the recently vaccinated, the remotely vaccinated, and the unvaccinated, as regards both incidence and average severity of attack. Particulars of these will be found not only in the local reports, but also in the abstracts published in the medical papers.

Diphtheria is another deadly infectious malady which has gained ground of late years, especially among urban populations. An important contribution to our knowledge of the causes at work has been made by Mr. Shirley Murphy, Medical Officer of Health for the County of London, who has found as the outcome of a careful statistical inquiry a striking degree of parallelism between the increased efficiency of the administration of the Elementary Education Act and the increased incidence of diphtheria upon children at school ages.

# SUMMARY OF THE THERAPEUTICS OF THE YEAR 1893-94,

CHIEFLY IN REFERENCE TO NEW REMEDIES.

BY WALTER G. SMITH, M.D. DUBLIN,

*President of the Royal College of Physicians of Ireland ;*

*King's Professor of Materia Medica in the School of Physic, Trinity College, Dublin ;  
Physician to Sir Patrick Dun's Hospital.*

THE therapeutic literature of the past year follows much the same lines as that of the preceding year, and many new organic compounds have been proposed for use. Upon some of them it is too soon to form a definite judgment, and it is certain that many will not survive a year's trial.

Others are mere trifling modifications of, or closely allied to, previously known bodies, while others, again, are curious mixtures or combinations of organic chemicals, and seem to offer no distinct advantage over extemporaneous combinations which any intelligent practitioner could evolve for himself.

Thus we hear of Antispasmin, stated to be a compound of sodium-narcein and sodium salicylate, and of Migranin, which is affirmed to be a citrate of antipyrin caffeine. This sort of thing only represents trade competition, and cannot seriously be called a scientific advance in pharmacy or therapeutics.

Two of the most striking features of recent therapeutics are these: First, the specific treatment of infective diseases by bacterial products (*cf.* special articles in "Year-Book").

Bacterio-therapy has been practically employed in man in tetanus (Behring, von Ziemssen and others), in enteric fever (Fraenkel, Rumpf), in cholera (Sawtschenko, Pawlowsky), and in diphtheria (Klebs, and many others). (*Ther. Monatsh.* Juni, 1894.)

Secondly, the introduction of organic extracts prepared from various organs and tissues. We all remember the ridicule which was cast by some upon Brown-Séquard's proposal in 1889 to inject orchitic fluid hypodermically in cases of senile weakness and certain nervous affections, yet we have quickly, almost



greedily, adopted thyroid extract, and its extraordinary effects have been the subject of many observations. An enterprising firm advertises no fewer than eight varieties of "organic fluids," warranted to cure all the incurable maladies of humanity.

Among the novelties noticed in the present summary are neurodin, thermodin, loretin, tolusal, hæmalbumin, ferratin, lactophenin, salacetol, dulcin, thioform, and tannigen.

## I.—THERAPEUTICS OF IRON.

The vexed question of the absorption co-efficient, as it may be termed, of iron is not yet determinately settled, and various organic substitutes for inorganic chalybeates have from time to time been proposed.

**Robert** (*Deut. med. Woch.*, Juli, 1894) discusses the dietetic significance of iron, and estimates the total daily need of the body for iron at 50 mg. He points out that therapeutically vegetable food stuffs are not as appropriate for the formation of hæmoglobin as the animal food stuffs, and further that as regards milk it can only rarely yield the necessary supply of iron in disease inasmuch as its ferruginous constituents are with difficulty decomposed by the digestive juices. He believes that preparations which contain blood in a form intermediate between hæmoglobin and hæmatin are absorbed in a useful form, and proposes for adoption two substances obtained by the action of reducing agents upon the blood, which he terms hæmogallol and hæmol. (*Brit. Med. Journ., Epit.*, Aug. 25, 1894.)

**Billig** and **Lang** find hæmogallol serviceable in anæmia and chlorosis.

**Hæmalbumin**, an iron-albuminate, is proposed by **Dahmen** as an excellent nutritive tonic. It is soluble in alcohol and in hot water, and the dose for an adult case of chlorosis is 1 grm. three to six times a day. It is supplied by Klever, of Cologne, at 23 marks per kilo. (*Deut. med. Woch.*, 1894, No. 14.)

**Ferratin**.—**Schmiedeberg** and his pupil **Marfori** have succeeded in preparing from pig's liver an albuminous compound of iron which is termed "ferratin," and contains about 6 per cent. of iron. They have also prepared a similar compound artificially from white of egg and an iron salt in an alkaline medium. It is a red-brown powder little soluble in distilled water, but soluble in presence of soda. Marfori (*Ann. di Chimica e di Farmacologia*, Feb. 1, 1894) has investigated this substance, and his conclusions are as follows: It contains from 7 to 8 per cent. of iron. It is absorbed in notable quantities from the intestines, and when

injected directly into the blood stream it does not appear to be excreted either by the kidneys or the intestines save in minute quantities. This is a great contrast to what happens with the inorganic salts of iron, which are mainly excreted into the intestines. It is a remarkable fact that the liver of many animals examined is found to contain naturally a substance closely resembling the artificial ferratin, and in considerable abundance. It appears to be also identical with the "hæmatogen," isolated by Bunge from the egg. Bunge proved that this substance serves as material for the formation of hæmoglobin, so that ferratin should be a really valuable blood food. Clinical experience has proved it to act in this way, and without causing any constitutional disturbance. It may be given in doses of 15 to 30 grms. daily, care being taken not to associate it too closely with acid materials. (*Brit. Med. Journ., Epit.*, June 16; *Archiv f. exp. Pathol.*, Bd. 33, 101.)

**Bauholzer** confirms Schmiedeberg's statements and thinks ferratin well deserving of further trial. (*Brit. Med. Journ., Epit.*, Feb. 17, 1894, from *Centralbt. f. inn. Med.*)

## II — ANTISEPTICS, ANTIPYRETICS, ANALGESICS.

No new antiseptic of importance has been introduced, and indeed if a practitioner really understands how to handle the two groups—viz., mercurial salts and the phenolic compounds (carbolic acid and the cresols)—he will have but little need to look further.

### General theory of antipyretics.

Two interesting papers upon this important question have recently been published.

**Professor von Mering** illustrates very forcibly the relations between chemical constitution and antipyretic action in the aromatic combinations.

Quinine was the only general antipyretic drug known up to the year 1875, when **Buss** discovered the antipyretic action of salicylic acid. This at once opened up the path for fresh discoveries. And in succession were tried other aromatic acids (benzoic, cresotinic, etc.); phenol; the diatomic phenols (resorcin, pyrocatechin, and hydrochinon); chinolin, and its derivative kairin. But all these proved unsuitable, and were mostly highly poisonous.

Then in 1884 came the discovery by **Knorr** of antipyrin, and to the French observers **Lépine** and **Sée** we are indebted for teaching us its valuable antineuralgic properties. The next important addition to the list was in 1886, when **Cahn** and **Hepp** introduced acetanilide

(antifebrin). It was found that the homologues of antifebrin (*e.g.*, benzanilide; formanilide) exhibited a much weaker antipyretic action, and that the methyl derivative of acetanilide, *viz.*, exalgin, was too poisonous. The discovery of the antifebrile action of acetanilide gave a marked impulse to the study of the connection between chemical constitution and physiological action, and in 1887 we made the acquaintance of phenacetin, *i.e.*, oxyethyl-acetanilide or eth-acetin. In certain particulars phenacetin possesses advantages over antipyrin. The allied body, methacetin, was not found practically suitable.

Under the name euphorin, **Sansoni** and **Giacosa** in 1890 introduced phenyl-urethane, which turned out to be uncertain and dangerous. On account of the relative harmlessness of phenacetin, attention was directed to the preparation of more easily soluble derivatives of it, and so phenocoll (amido-phenacetin) was arrived at.

If we now take a rapid survey of the series of antipyretics, we are led to the conclusion that, apart from the toxic nitrogenous nuclei, amido-phenol,  $C_6H_4OH \cdot NH_2$ , is an important mother substance as regards antifebrile and antineuralgic actions. P-amido-phenol is excreted as amido-phenol-sulphuric acid, but is too depressing for use in therapeutics (*cf.* Hinsberg und Treupel, Ueber die physiol. Wirkung des P-amidophenols und einiger Derivate desselben (*Archiv f. exp. Pathol. u. Pharm.*, Bd. 33, 216).

Pursuing his investigations and arguing that, inasmuch as phenacetin is pharmacologically superior to acetanilide, so might the derivatives of p-oxyphenyl-urethane be clinically preferable to phenyl-urethane, **von Mering** succeeded in producing two new products—neurodin and thermodin—which are noted below.

We wish that we had space to reproduce von Mering's summary of his theoretical and practical investigation, but must refer readers to the original paper (*Ther. Monatsh.*, Dec., 1893).

**E. Harnack** contributes a lucid sketch of the present state of knowledge of the general mode of action of antipyretic remedies.

His paper is based upon a physiological study of the relations which subsist between the two factors which control our temperature, *viz.*, the production of heat and the loss of heat.

A body at temperature,  $t$ , to which, in unit of time,  $x$  calories are supplied and from which  $x$  calories are withdrawn, maintains its  $t$  constant. So likewise will a body which undergoes similarly a gain of  $2x$  calories and isochronously a loss of  $2x$  calories. Hence we have at once the key to the paradox of *fever without elevation of temperature*, an event often realised in practice. And,



we may define a pyrogenous agent (poison) as one which raises the heat production of the organism, while at the same time the organism is rendered unable correspondingly to increase the loss of heat.

The mode of action of antipyretic remedies depends upon these simple principles : (1) Increased loss of heat ; (2) diminished production of heat ; (3) simultaneous modification of both of these processes.

Antipyretic remedies may be generally classed under three heads, viz. :—

- (1) Cold applications.
- (2) Protoplasmic actions.
- (3) Nerve actions.

Of these we may affirm that cold applications operate chiefly by promoting loss of heat, but undoubtedly most of the practically useful antipyretics belong to groups 2 and 3. In the case of quinine we have to distinguish (*a*) its beneficial effect in intermittent fevers due to its specific action upon the toxic agent, *i.e.*, removing the *causa nocens* ; and (*b*) its general antipyretic action due to a widespread protoplasmic action upon the cellular elements of the tissues in which the thermal processes go on.

But an antipyretic effect may also result in consequence of an influence over the heat-regulating nervous centres, and it is highly probable that it is to this kind of influence we may ascribe in part the antipyretic action of the relatively simply constituted benzol derivatives.

A comparison of the relative actions of phenol, anilin, and amido-phenol, with their derivatives, respectively, salicylic acid, acetanilide, phenacetin, and neurodin, teaches us that the more deeply substituted combination (*i.e.*, with longer and more numerous side chains) is by far the less poisonous, whereas the simple combination is too violent and too rapid to be practically available. Further, the well-recognised antineuralgic action of aromatic compounds points with no uncertain indication to the paralysing action of such drugs upon the nervous apparatus, which is so clearly manifest in the simple phenols. So that in quinine the protoplasmic action predominates ; in phenol derivatives, the nerve action.

Pharmacology has in these inquiries lent substantial aid to physiology, and we may now look even a little further forwards. For it is probable that in addition to the proper heat-regulating centres there exist also inhibitory arrangements for the latter. Perhaps we may account in this way for the powerful temperature-depressing effect of certain tetanising poisons, and possibly

conversely for the pyretic action of some poisons, *e.g.*, cocaine. (*Therap. Monatsh.*, März, 1894.)

**Neurodin and Thermodin.**

Under these empirical names von Mering introduces two novelties prepared by Merck, of Darmstadt. Neurodin is an acetyl derivative of oxyphenyl-urethane, and thermodin is an ethyl derivative. Von Mering has tested neurodin as an antipyretic in 24 cases of various fevers, and as an antineuralgic in 30 cases. Thermodin was tested in 50 cases of febrile diseases. The final result of his observations is that in doses of 1 grm. neurodin is an efficient antineuralgic, and that thermodin is an excellent and safe antipyretic in doses of 0.5 to 0.7 grm. As an analgesic, thermodin requires to be administered in doses of  $1\frac{1}{2}$  grm. for an adult. They are given in powder.

**Agathin** (*cf.* "Year-Book," 1894, p. 463).—Rosenbaum reiterates his recommendation of this drug in neuralgia, and gives additional cases. Usual dose, 8 grs. (*Deutsch. med. Zeit.*)

**Salophen** is strongly recommended by Drews in acute rheumatism in children, and in migraine. Dose, 5 to 7 grs. It is easily taken as a powder. (*Allgem. med. Centr. Zeit.*, 1894.)

**Salipyrin** (*cf.* "Year-Book," 1893) is commended by Mosengeil after two-and-a-half years' experience, and he considers it a specific for influenza. Dose, for adult, 1 grm. and upwards. (*Deutsch. med. Zeit.*, 1893.)

**Malakin** (*cf.* "Year-Book," 1894, p. 463) is reported by Bauer and Germain as an excellent anti-rheumatic. Dose, half a gram. (*Brit. Med. Journ., Epit.*, May 12, Sept. 1, 1894.)

**Lactophenin** is closely related to phenacetin, and instead of acetyl ( $\text{CH}_3\text{CO}$ ) it contains the residue of lactic acid ( $\text{CO CH OH CH}_3$ ) *i.e.*, is a lactic acid derivative of phenetidin. It is a white crystalline body, rather more easily soluble than phenacetin. Schmiedeberg was the first to test it experimentally upon animals, and a number of clinical observations upon its action have been made by von Jaksch, Lewandowski, Jaquet, and Gissler. It has been employed in a number of acute febrile diseases, and Roth concludes that lactophenin is worthy of being placed along with the salicylates as an anti-rheumatic. Dose, 1 to 5 grms. (*Ther. Monatsh.*, Juli, 1894; *Brit. Med. Journ., Epit.*, Oct. 20, 1894.)

Strauss publishes an elaborate paper upon it, and extols it as an antipyretic and sedative, especially on account of its relatively harmless qualities. He considers it will prove a powerful rival to phenacetin. It is interesting to note that we are now confronted with four competitors, all derivatives of phenetidin, *i.e.*, ethyl-amido-phenol,  $\text{C}_6\text{H}_4$ ,  $\text{OC}_2\text{H}_5$ ,  $\text{NH}$ .

For we have—

Phenacetin	=	acetyl-phenetidin	(76	per	cent.	phenetidin).
Phenocoll	=	amido-aceto-phenetidin	(70	"	"	"
Malakin	=	salicyl-phenetidin	(65	"	"	"
Lactophenin	=	lactyl-phenetidin	(56	"	"	"

The urine gives the reactions of phenetidin and of amido-phenol, which appear to be the antipyretic nucleus of all the above-named compounds. (*Therap. Monatsh.*, Sept.-Oct., 1894.)

**Salacetol** is recommended by Bourget and Barbey as an advantageous substitute for salol, inasmuch as it is not a phenol compound. (*Therap. Monatsh.*, Dec., 1893.)

The new substance is a compound of salicylic acid with acetone, and is a crystalline white powder insoluble in water, and containing about 75 per cent. of salicylic acid (salol containing about 60 per cent.). It passes undissolved through the stomach but in contact with the alkaline intestinal juices it slowly releases its salicylic acid, the acetol component being at the same time converted into acetone and eliminated. Salicylic acid appears in the urine within half an hour after the administration of salacetol, and a dose of 2 grams is completely eliminated in twenty-four hours. The mode of administration plays an important part in the determination of the completeness and rapidity of its absorption. It appears best absorbed and most rapidly eliminated if given in a purgative oil, such as castor oil. The result of trials both in hospital and in private practice showed that salacetol given in this manner is most useful in cases of choleraic diarrhoea and kindred affections. The author has been led to discard all the usual remedies, such as opium and bismuth, etc., in favour of the new drug, which is given fasting. It is seldom necessary to repeat it next day, but there is no harm in doing so should occasion arise. From the absence of phenol, salacetol is less dangerous than salol, possessing all its advantages with few of its defects. (*Brit. Med. Journ., Epit.*, Nov. 11, 1893.)

**Dulcin**, proposed as a substitute for saccharin, is an aromatic derivative of urea, and is phenetol-carbamide. It is 200 to 250 times sweeter than sugar, and is pleasanter to the taste than saccharin (Kobert, *Sep. Abdr. Centralbl. f. inn. Med.*).

## Trieresol.

Cresol is methyl-phenol, and is highly antiseptic and less poisonous than phenol. Commercial crude carbolic acid, and such preparations as creolin, solveol, and lysol, owe their valuable qualities mainly to their containing cresols in varying proportions. Cresol is known in three isomeric forms (ortho-, meta-, and para-) which are difficult to separate, and **Liebreich** strongly recommends



a mixture of the three pure cresols which is supplied by Schering, of Berlin, under the name of tricresol (*Therap. Monatsh.*, Jan., 1894). Solution of tricresol in water is readily effected by the aid of soft soap.

**Parachlorphenol** is recommended by **Elsenberg** as a valuable caustic in the treatment of lupus (*see Diseases of the Skin*, p. 391).

**Szmurlo**, of Warsaw, does not approve of parachlorphenol, and finds it inferior to lactic acid or phenol.

### **Tolpyrin and tollys.**

Tolpyrin was noticed in the "Year-Book" for 1894, p. 464, and we are now presented with tollys, *i.e.*, the salicylic salt of tolpyrin. This compound is vaunted as an anti-rheumatic. Dose, 1-2 grms. and upwards. (**Körner**, *Sep. Abdr. Wien. med. Bl., und Allgem. med. Cent. Zeit.*).

### **Creasote and guaiacol.**

A full account of the employment of these substances in tuberculosis was given by **Skerritt** in the "Year-Book," 1894.

Benzoyl-guaiacol (benzosol) is recommended by **Walzer** as a pleasanter drug than creasote; the dose is 20-30 grs. a day, given in powder or in chocolate pastilles.

**Wilcox** and **Gottheil** extol creasote-carbonate, a syrupy yellow liquid. Dose for an adult, from 1-3 teaspoonfuls, in emulsion.

**Hölscher** lauds guaiacol-carbonate, a crystalline body. Dose, 3-7 grs.

**Linossier** and **Lannois** (*Sem. Méd.*) show that guaiacol is rapidly absorbed by the skin, and several writers speak of the antipyretic action of guaiacol when applied externally.

## III.—LOCAL REMEDIES.

**Thioform**, prepared by Speyer and Grund, of Frankfort, has been tested clinically by **J. Schmidt**. It is a greyish-yellow powder, and is the bismuth salt of a dithiosalicylic acid. Light and voluminous, it is insoluble in water, alcohol, and ether. It was introduced as a substitute for iodoform, but is devoid of iodine, and is rather to be compared with dermatol. When applied to fresh wounds, thioform produces rapid drying of the surface, leading to a more rapid cicatrisation than has been observed after the use of any other application; this was noticed even in extensive surface lesions, such as burns, weeping eczema, and gangrenous patches, the latter having healed in four days. The author tested the powder in five cases of ulcer of the leg which had resisted other treatment. The ulcer having been cleaned and disinfected, the thioform was thickly dusted over it, and covered with cotton

wool and a bandage. Every fourth day the whole dressing was changed, and though the patient continued to walk about during the treatment, the cure required only two to three weeks. Some pain was occasionally produced, but no sign of irritation could be seen. Similar results in the practice of other surgeons are given. Finally, the author used thioform internally, after having satisfied himself as to its nonpoisonous character, and with daily long-continued doses of 15 grains, better, though similar, results were obtained than with salicylate of bismuth. (*Therap. Monatsh.*, April, 1894; and *Brit. Med. Journ., Epit.*, June 9, 1894.)

**Tannigen**, the acetic ester of tannin, has been tested by Meyer and Müller. It is a yellowish-grey powder, scarcely soluble in water. Some of it can be found in the fæces, even when small doses have been given. It may be injected subcutaneously (5 per cent. borax solution). Müller has tried tannigen chiefly in diarrhœa. In most cases 2 to 5 dg. thrice daily sufficed, but 3 to 4 g. could be given in the day without ill effects. In chronic diarrhœa improvement was soon noticed. In some phthisical patients the effect only lasted while the drug was being administered. It has been taken for weeks without any ill effects, or without the patients getting accustomed to its action. Its value in acute diarrhœa is more doubtful. It was also used in chronic inflammation of the nose and throat. Tannigen has advantages, as it is tasteless and does not harm the stomach. (*Therap. Monatsh.*, Sept., 1894; *Brit. Med. Journ., Epit.*, Sept. 1, 1894.)

**Symphorol**, or caffein-sulphonic acid (*cf.* "Year-Book," 1894, p. 466), has been proposed as a diuretic, and favourably reported on by Heinz and Liebrecht, but Ernest Waters has tried it on several patients, and in no case could any appreciable benefit be ascribed to the symphorol. The dose is 60 grains a day, in four portions of 15 grains each. (*Brit. Med. Journ.*, June 9, 1894.)

**Ichthyol** continues to attract attention, and a large number of papers relating to it have appeared. Various writers strongly recommend it in gonorrhœa (1, 2, and 3 per cent. solutions), viz., Neisser, Ehrmann, and Manganoiti. Freudenberg extols ichthyol suppositories in the treatment of prostatitis. (*Centralbl. f. klin. Med.*, 1893.)

Herz recommends it for the management of the sore feet of soldiers; it is used in 20 per cent. solution. (*Aerztl. Central-Anz.*, Mai, 1894.)

Villetti, of Rome, uses ichthyol with success in urethritis and cystitis. Abel has investigated its antiseptic properties. He finds that weak solutions quickly destroy streptococcus pyogenes and streptococcus erysipelatis, whereas staphylococcus aureus and

albus, bacillus pyocyaneus, the bacilli of enteric fever, ozæna and anthrax, and the spirillum of cholera are fairly resistant to its action. Fresh colonies of the diphtheria bacillus are easily destroyed by weak ichthyol solutions, whereas old foci are very resistant. (*Centralbl. f. Bakter.*, 1893.)

**Gallanol** (*cf.* "Year-Book," 1894, p. 465). Bayet and Gounon bear testimony to the usefulness of this drug in eczema and psoriasis. It is weaker in action than chrysarobin, but is free from its drawbacks. (*Brit. Med. Journ., Epit.*, Dec. 16, 1893, and Jan. 20, 1894.)

**Loretin** is proposed as a substitute for iodoform. It is an iodine derivative of oxy-quinoline-sulphonic acid; and occurs as a yellow, odourless powder, almost insoluble in water. Fenzling and Schinzinger speak well of it as an application to wounds. (*Deutsche thieraerzt. Woch.*)

**Europen** continues in favour, and is well spoken of by Ullmann (*Int. klin. Rundsch.*), Gilbert (*Balneol. Centralbl.*), and Oefelein and Neuberger (*Monatsh. f. prakt. Derm.*) in soft sores, burns, ulcers of leg. It is undoubtedly an efficient and agreeable substitute for iodoform.

#### IV.—NARCOTICS AND SEDATIVES.

**Antispasmin** is the trade name for a compound of narcein-sodium with sodium salicylate. It is a white powder, easily soluble in water, and contains about 50 per cent. of narcein. Rabow and Bourget, of Lausanne, have tested its effects in hospital practice, and find that, as might have been expected from our knowledge of narcein, it is a very feeble sedative, and is about forty to fifty times weaker than morphine. Its price, too, is necessarily high, and there appears to be no valid ground for specially recommending it. (*Therap. Monatsh.*, Mai, 1894.)

**Chloralose** (*cf.* "Year-Book," 1894, p. 74) has been the subject of a number of inquiries, which, as a whole, are favourable and recommend it for further trial. It is a compound of chloral and glucose, and the most noteworthy point about it is the smallness of dose required, from 3 to 15 grains. In asylum practice it has been found of signal service in the treatment of insomnia. Ferrannini and Casaretti (*Rif. Med.*, Aug., 1893) arrive at the following conclusions: (1) Chloralose is highly successful in insomnia from over-excitement of the psychical centres; it is preferable to chloral in the insomnia accompanying heart disease; it is better tolerated by the digestive tract than any other hypnotic; it acts extremely well in cases in which insomnia is



due to disorders of the digestive tract ; it is inferior to morphine and similar hypnotics if the insomnia is due to pain ; it has no cumulative action ; it acts equally well if given several evenings in succession. (2) Without causing any intolerance, chloralose is a certain hypnotic in doses of from 15 to 40 centigrammes given by the stomach ; of 20 to 40 centigrammes by the rectum ; of 5 to 10 centigrammes by the hypodermic method. The amount of tolerance both by the cardio-vascular and the digestive system is remarkable. If these doses be exceeded, phenomena of poisoning may make themselves manifest similar to those seen in animals. (3) Should it happen in any case that the above doses are insufficient, it is allowable to increase them, but with great caution, noting carefully the effect of each increase of 10 centigrammes. In no case, however, should the dose exceed 1·2 gramme, either by the mouth or the rectum. 4. In certain nervous disorders, such as hysteria and chorea, the drug may be successful in calming the convulsive phenomena in the same dose as the hypnotic ones already stated. (*Brit. Med. Journ., Epit., Nov. 4, 1893.*)

**Lombroso** (*Rif. Med., No. 131, 1893*), while admitting that chloralose is one of the least injurious of narcotics, denies that it is entirely harmless. After the administration of 0·25 g., he has seen in the case of an intelligent girl the occurrence of tremor, followed by complete loss of memory ; in another case the same dose caused intense prurigo. In a third case, a dose of 0·50 g. was followed by symptoms of paresis, with threatening asphyxia. (*Brit. Med. Journ., Epit., Dec. 2, 1893.*)

**Cappelletti** finds that in cases of slight insomnia 3 to 6 grs. are sufficient, but in severe insomnia 12 to 18 grs. may be necessary. Small doses should be given to the feeble or hysterical. (*Brit. Med. Journ., Epit., June 9, 1894.*) **Chambord** considers chloralose specially indicated in cardio-vascular affections. It sometimes induces psychical and motor disturbances. (*Brit. Med. Journ., Epit., July, 1894, from Rev. de Méd., June.*) **Touvenaint** confirms this. **Sacaze** calls attention to the fact that chloralose is not only a good hypnotic in phthisis, but also checks night sweats. He administers it in small doses (50 centigr.) and in cachets. (*Brit. Med. Journ., Epit., Sept. 29, 1894, from Sem. Méd.*) **L. L'Hoest** has tried chloralose extensively, and believes that it is not only an excellent hypnotic, but that as a sedative it is as efficacious as duboisin without the drawbacks of that substance. (*Brit. Med. Journ., Epit., Oct. 13, 1894.*)

**Duboisin.** This mydriatic alkaloid has been largely employed in asylum practice, and is less expensive than hyoscin,

The dose is from 1 to 3 milligrammes. **De Montyel**, **Ostermayer**, **Preininger**, **Näcke**, and **Mendel** all report favourably of it as a sedative in insanity. (Dr. Ringrose Atkins's Report on Nerv. and Mental Dis., *Dubl. Journ. Med. Sci.*, Aug., 1894.)

**Trional** has been the subject of several communications. (cf. "Year-Book," 1894, p. 79.) **Collatz** and **Beyer** approve of it in various forms of insanity as a safe and useful hypnotic. **Rychlinski** thinks trional should be preferred to all our ordinary hypnotic remedies. **Bellamy** finds it valuable in delirium tremens: 20 grs. every hour until sleep follows. Occasionally trional causes hæmatoporphynuria (Schultze) as with sulphonal. (*Brit. Med. Journ., Epit.*, Oct. 28, 1893; April 7 and 21, 1894; Oct. 13, 1894.) **Stieglitz** speaks well of it (reprint from *Morgagni*. Also, Grünfeld (*Pest. med. chir. Presse*).

# SELECTED LIST OF NEW BOOKS, NEW EDITIONS AND TRANSLATIONS.

## DISEASES OF THE HEART AND CIRCULATION.

- André, G.—“Insuffisance mitrale.” 226 pp., 12mo. *Rueff et Cie.* Paris, 1894.
- Balfour, George William.—“The Senile Heart: its Symptoms, Sequelæ and Treatment.” Illustr. vi.—300 pp., sm. Svo. *A. & C. Black.* London, 1894. 5s.
- Barié, E.—“Bruits de souffle et bruits de galop.” 214 pp., 12mo. *Rueff et Cie.* Paris, 1894.
- Baur, Jos., und Bollinger, O.—“Ueber idiopathische Herzvergrößerung.” Festschrift zu . . . Prof. Max von Pettenkofer. 103 pp., Svo. *J. F. Lehmann.* München, 1893.
- Beurnier, Louis.—“Les varices.” 225 pp., 12mo. *Rueff et Cie.* Paris, 1894.
- Huchard, H.—“Traité clinique des maladies du cœur et des vaisseaux.” *Deuxième édition.* Paris, 1893. 16 francs.
- Mohr, George.—“Ueber Complicationen bei der idiopathischen Herzvergrößerung.” 35 pp., Svo. *J. F. Lehmann.* München, 1894.
- Otto, Reinhard.—“Untersuchungen über Sehnervenveränderungen bei Arteriosclerose.” Illustr. 132 pp., Svo. *J. Springer.* Berlin, 1893.
- Pinau, Arsène.—“Variétés cliniques et pathogénies des endocardites infectieuses.” 120 pp., Svo. Paris, 1893.
- Rosenbach, O.—“Die Krankheiten des Herzens und ihre Behandlung.” 1 Heft. 400 pp., Svo. *Urban u. Schwarzenburg.* Wien u. Leipzig, 1893.
- Teissier, Pierre.—“Maladies du cœur et tuberculose. Des lésions de l'endocarde chez les tuberculeux (étude anatomopathologique, pathogénique, expérimentale, clinique.” 326 pp., Svo. *J. B. Bailière et Fils.* Paris, 1894.
- Thorne, William B.—“The Treatment of Chronic Diseases of the Heart by Baths and Exercises according to the Method of the Drs. Schott.” 24 pp., 12mo. *J. & A. Churchill.* London, 1894.

## DISEASES OF THE LUNGS AND ORGANS OF RESPIRATION.

- Barth, H.—“Thérapeutique des maladies des organes respiratoires.” 398 pp., 12mo. *O. Doin.* Paris, 1894.

- Bryce, Peter, H.—“Report on Tuberculosis in Ontario, presented to the Provincial Board of Health, and adopted with Recommendations contained therein.” 51pp., Svo. *Warwick Bros. and Rutter.* Toronto, 1894.
- Burlureaux.—“Traitement de la tuberculose par la créosote.” 375 pp., Svo. *Rueff et Cie.* Paris, 1894.
- Clark, Sir Andrew, Bart., Hadley, W. J., and Chaplin, Arnold.—“Fibroid Diseases of the Lung, including Fibroid Phthisis.” Illustr. Svo. *Griffin.* London, 1894. 21s. net.
- Fenwick, W. S.—“The Dyspepsia of Phthisis: its Varieties and Treatment, including a Description of Certain Forms of Dyspepsia Associated with the Tubercular Diathesis.” 206 pp., Svo. *H. K. Lewis.* London, 1894. 6s.
- Fox, J. J.—“The Lungs: Basic Principles for their Healing and Development.” 217 pp., sm. Svo. *C. T. Hurlburt.* New York, 1893.
- Fraenkel, A. u. Troje, G.—“Ueber die pneumonische Form der acuten Lungen-tuberculose. Klinische und pathologisch-anatomische Mittheilungen aus der inneren Abtheilung des städtischen Krankenhauses am Urban in Berlin.” Illustr. 140 pp., Svo. *A. Hirschwald.* Berlin, 1893.
- Hardwicke, H. J.—“Alpine Climates for Consumption.” 12mo. *Churchill.* London, 1894. 2s. 6d.
- Klebs, Edwin.—“Die causale Behandlung der Tuberculose. Experimentelle und klinische Studien.” Illustr. 645 pp., Svo. *Hamburg u. Leipzig,* 1894.
- Powell, R. Douglas, M.D.—“Diseases of the Lungs and Pleuræ, including Consumption.” 4th ed. *H. K. Lewis.* London, 1893. 18s.
- Remondino, P. C.—“The Mild Climatic Treatment of Invalids with Pulmonary Consumption in Southern California.” 137 pp., 12mo. *G. S. Davis.* Detroit, 1894.
- Schmidt, Moritz.—“Die Krankheiten der oberen Luftwege.” Illustr. 739 pp., Svo. *J. Springer.* Berlin, 1894.
- Squire, J. Edward.—“The Hygienic Prevention of Consumption.” 206 pp., sm. Svo. *C. Griffin.* 1893.
- Thorne, W. Bezly.—“The Open-Air Treatment of Phthisis, as practised at Falkenstein in the Taunus Mountains, Germany.



- A Sessional Lecture of the Royal British Nurses' Association." 31 pp., 16mo. J. and A. Churchill. London, 1894.
- Thorowgood, J. C.—"Asthma and Chronic Bronchitis: a new edition of 'Notes on Asthma and Bronchial Asthma.'" 130 pp., sm. Svo. Baillière, Tindall, and Cox. London, 4s.
- Williams, C. T.—"Aëro-therapeutics, or the Treatment of Lung Diseases by Climate. Being the Lumleian Lectures for 1893." Svo. Macmillan. London, 1894. 6s. net.
- ### DISEASES OF THE NERVOUS SYSTEM, INCLUDING INSANITY.
- Althaus, J.—"On Failure of Brain Power (Encephalasthenia), its Nature and Treatment." 4th ed. Sm. Svo. Longmans. London, 1894. 3s. 6d.
- Asmus, Eduard.—"Ueber Syringomyelie." 25 pp., 4to. T. G. Fischer u. Co. Cassel, 1893.
- Babes, V., et Blocq, P.—"Atlas des pathologiques Histologie des Nervensystems. Herausg. von V. Babes, P. Blocq [et al.] Redigirt von V. Babes und P. Blocq. 2te Lief. Régénération des nerfs. Degeneration und Entzündung der Nerven." Plates. 52 pp., la. Svo. A. Hirschwald. Berlin, 1894.
- Binswanger, O.—"Die pathologische Histologie der Grosshirnrinden-Erkrankung bei der allgemeinen progressiven Paralyse mit besonderer Berücksichtigung der acuten und Frühformen." 186 pp., Svo. G. Fischer. Jena, 1893.
- Blandford, G. Fielding.—"Insanity and its Treatment. Lectures on the Treatment, Medical and Legal, of Insane Patients, containing the New Law of Lunacy." 4th ed. 508 pp. Oliver and Boyd. Edinb., 1893, 10s. 6d.
- Browne, Ralph.—"Neurasthenia and its Treatment by Hypodermic Transfusions (according to the Method of Dr. Jules Chéron)." Svo., 66 pp. Churchill. London, 1894. 1s.
- Brugère, Michel J. P. L. J.—"Contribution à l'étude des pseudoméningites hystériques (Symptomatologie et Diagnostique). Thèse de Bordeaux." No. 47. 57 pp., 4to. 1893.
- Brunet, Henri.—"Dégénérescence mentale et goitre exophtalmique." 189 pp., Svo. G. Steinheil. Paris, 1893.
- Chipault, A.—"Études de chirurgie médullaire (historique, chirurgie opératoire, traitement)." 2 pl., 409 pp., Svo. F. Alcan. Paris, 1894.
- Debierre, Ch.—"La moëlle épinière et l'encéphale avec applications physiologiques et médico-chirurgicales, et suivis d'un aperçu sur la physiologie de l'esprit." 458 pp., Svo. F. Alcan. Paris, 1894.
- Dowse, Thomas S.—"On Brain and Nerve Exhaustion (neurasthenia), and on the Nervous Sequelæ of Influenza." 4th edit. 140 pp., Svo. Baillière, Tindall, and Cox. London, 1894.
- Féré, Ch.—"La Famille névropathique. Théorie tératologique de l'hérédité et de la prédisposition morbide et de la dégénérescence." 334 pp., Svo. F. Alcan. Paris, 1894. 4 francs.
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- Gergen, Carl.—"Beiträge zur Casuistik der Hysteria Virilis." 56 pp., Svo. Seelmeyr. Würzburg, 1893.
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- Harding, W.—"Mental Nursing: or Lectures for Asylum Attendants." Illustr. 2nd ed. 138 pp., Svo. Scientific Press. London, 1894.
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- Ireland, William W.—"The Blot upon the Brain: Studies in History and Psychology." 2nd ed. Bell and Bradford. Edinb. Simpkin, Marshall and Co. London, 1893. 10s. 6d.
- Körner, Otto.—"Die otitischen Erkrankungen des Hirsns, der Hirnhäute und der Blutleiter. Mit einem Vorwort von Ernst von Bergmann." 163 pp., Svo. J. Alt. Frankfurt a. M., 1894.
- Kraepelin, Emil.—"Psychiatrie. Ein kurzes Lehrbuch für Studierende und Aerzte." 4te Aufl. 717 pp., Svo. A. Meiner. Leipzig, 1893.
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- Lefert, Paul.—"La pratique des maladies du système nerveux dans les hôpitaux de Paris. Aide-mémoire et formulaire de thérapeutique appliquée." 285 pp., 16mo. J. B. Baillière et Fils. Paris, 1894.
- Magnan, V., et Serieux, Paul.—"La paralysie générale." 193 pp., 12mo. G. Masson. Paris, 1894.
- Mayer, Karl.—"Ueber die combinirten systematischen Erkrankungen der Rückenmarksstränge der Erwachsenen." 53 pp. W. Braumüller. Wien u. Leipzig, 1894.

- Mercier, C.—“Lunacy Law for Medical Men.” Svo. *Churchill*. London, 1894. 5s.
- Mercier, C.—“Lunatic Asylums: their Organisation and Management.” 308 pp., 1a. Svo. *C. Griffin and Co.* London, 1894. 16s.
- Möbius, Paul J.—“Diagnostik der Nervenkrankheiten.” 2te Aufl. 412 pp., Svo. *F. C. W. Vogel*. Leipzig, 1894.
- Naegeli, Otto.—“Therapie von Neuralgien und Neurosen durch Handgriffe.” 114 pp., Svo. *C. Salmann*. Basel u. Leipzig, 1894.
- Oppenheimer, H.—“Lehrbuch der Nervenkrankheiten für Aerzte und Studierende.” 880 pp., Svo. *S. Karger*. Berlin, 1894.
- Osler, W.—“On Chorea and Choreiform Affections.” Svo. *H. K. Lewis*. London, 1894. 5s.
- Oulmont, P.—“Thérapeutique des névroses.” 342 pp., 12mo. *O. Doin*. Paris, 1894.
- Raymond, F.—“Maladies du système nerveux. Scléroses systématiques de la moëlle, tabes dorsalis et pseudo-tabes, maladie de Friedreich, tabes spasmodique et affections spasmodoparalytiques infantiles. Conférences faites à l'Hôpital Lariboisière pendant les années 1890-93.” 445 pp., Svo. *O. Doin*. Paris, 1894.
- Savage, George H.—“Insanity and Allied Neuroses, Practical and Clinical.” Sm. Svo. *Cassell*. London, 1894. 9s.
- Sextus, Carl.—“Hypnotism: its Facts, Theories, and Related Phenomena, with Explanatory Anecdotes, Descriptions, and Reminiscences.” 304 pp., Svo. *Chicago*, 1893.
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- Vallon, Charles.—“Pseudo-paralysies générales, saturnines et alcooliques.” 104 pp., 4to. *G. Masson*. Paris, 1894.
- Vaudremer, Albert.—“Des méningites suppurées non tuberculeuses.” 198 pp., Svo. *Darentière*. Dijon, 1893.
- Vigouroux, R.—“Neurasthénie et arthritisme. Urologie, régime alimentaire, traitement. Avec une introduction par F. Levillain.” 139 pp., 12mo. *A. Maloine*. Paris, 1893.
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- Wundt, W.—“Lectures in Human and Animal Psychology.” Translated from the 2nd German edit. by J. E. Creighton and E. B. Titchener. 446 pp., Svo. *Sonnenschein*. London, 1894. 15s.
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## DISEASES AND SURGERY OF STOMACH AND INTESTINES, INCLUDING HERNIA.

- Baillet, Marcel.—“La résection du segment iléo-cæcal de l'intestin.” 165 pp., Svo. *G. Steinheil*. Paris, 1894.
- Ball, Charles B.—“The Rectum and Anus: their Diseases and Treatment.” Illustr. 2nd ed. Sm. Svo, 430 pp. *Cassell*. London, 1894. 9s.
- Blaise, Paul.—“Canal inguinal chez l'adulte. Cure radicale de la hernie inguinale. Procédé de Paul Berger.” 148 pp., Svo. *G. Steinheil*. Paris, 1894.
- Bouvalet, L.—“Traité des maladies de l'estomac.” *J. B. Baillière et Fils*. Paris, 1893. 14 francs.
- Cornet, Jean B. A. L.—“De l'antisepsie des voies biliaires dans le traitement de la colique hépatique et de la lithiase biliaire.” Thèse de Bordeaux. No. 76. 69 pp., 4to. 1893.
- Duffau-Lagarrosse, Pierre M. L.—“De l'intervention chirurgicale dans la péritonite aiguë diffuse.” Thèse de Bordeaux. No. 43. 93 pp., 4to. 1893.
- Fowler, George R.—“A Treatise on Appendicitis.” Illustr. 190 pp. *J. B. Lippincott and Co.* 1894. 8s. 4d.
- Hagan, Richard.—“Zur Kenntniss der chronischen interstitiellen Hepatitis.” 126 pp., Svo. *Stämpfli*. Bern, 1893.
- Keith, S. and G. E.—“Textbook of Abdominal Surgery. A Clinical Manual for Practitioners and Students.” Illustr. Svo, 514 pp. *Young J. Pentland*. Edinb. and London, 1893.
- Langenbuch, C.—“Chirurgie der Leber und Gallenblase [Lieferung 45, 1 Hälfte. Billroth u. Luecke, Deutsche Chirurgie].” 402 pp., Svo. *F. Enke*. Stuttgart, 1894.
- Le Marinel, F.—“Du traitement mécanique de la constipation chronique. Manuel opératoire, indications et contre-indications.” 121 pp., Svo. *H. Lamertin*. Bruxelles, 1894.
- Malcolm, J. D.—“Physiology of Death from Traumatic Fever: a Study in Abdominal Surgery.” Svo. 129 pp. *Churchill*. London, 1893. 3s. 6d.
- Manley, T. H.—“Hernia: its Palliative and Radical Treatment in Adults, Children, and Infants.” Svo. *Rebman*. London, 1893. 11s.
- Martin, C.—“The After-Treatment of Cases of Abdominal Section.” Svo. 48 pp. *Cornish*. Birmingham. *Simpkin*. London, 1894. Net, 2s.
- Mathieu, Albert.—“Treatment of the Diseases of the Stomach and Intestines.” 302 pp., Svo. *W. Wood and Co.* New York, 1894.
- Morgenstern, Adolf.—“Ueber subphrenische Abscesse.” 31 pp., Svo. *J. Abel*. Greifswald, 1893.
- Nouailles, Louis J. L.—“Contribution à l'étude du traitement chirurgical des



- appendicitis." Thèse de Bordeaux. No. 45. 93 pp., 4to. 1893.
- Rosenheim, Th.—"Pathologie und Therapie der Krankheiten des Darms." 639 pp., 8vo. *Urban u. Schwarzenberg*. Wien u. Leipzig, 1893.
- Talamon, Ch.—"Appendicitis and Perityphlitis." Translated from the French by Richard J. A. Berry. *Young J. Pentland*. Edinb. and London, 1893. 6s.

### DISEASES OF THE KIDNEYS.

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- Rosenstein, Siegmund.—"Die Pathologie und Therapie der Nierenkrankheiten." 4te Aufl. Illustr. 723 pp., 8vo. *A. Hirschwald*. Berlin, 1894.
- Schmidt, Martin B., und Aschoff, Ludwig.—"Die Pyelonephritis in anatomischer und bakteriologischer Beziehung und die ursächliche Bedeutung des Bacterium coli commune für die Erkrankung der Harnwege." Illustr. 101 pp., 8vo. *G. Fischer*. Jena, 1893.
- Wagner, Paul.—"Abriss der Nierenchirurgie." 252 pp., 12mo. *A. Miner*. Leipzig, 1893.

### RHEUMATISM AND GOUT.

- Roose, R.—"Gout and its Relation to Diseases of the Liver and Kidneys." 7th ed. Sm. 8vo., 242 pp. *Lewis*. London, 1894. 4s. 6d.
- Wade, Woughby Francis.—"On Gout as a Peripheral Neurosis." *Simpkin, Marshall, and Co*. London. *Cornish Brothers*. Birmingham, 1893. 2s. 6d.

### INFECTIOUS FEVERS.

- Bedford, Surgeon-Captain C. H.—"The History, Causation, and Prevention of the Enteric Fever of India." *Oliver and Boyd*. Edinb.
- Behring.—"Bekämpfung der Infektionskrankheiten. Infection und Desinfection. Versuch einer systematischen Darstellung der Lehre von den Infektionsstoffen und Desinfectionsmitteln." 263 pp., 8vo. *G. Thieme*. Leipzig, 1894.
- Bernardbeig, Charles.—"Complications articulaires de la diphtérie." 55 pp., 8vo. *G. Steinheil*. Paris, 1894.
- Cassoute, Emile.—"Épidémies cholériques de Marseille et de Barrême, 1892-93. Le rôle de l'eau dans la transmission du choléra." 110 pp., 8vo. *G. Steinheil*. Paris, 1894.
- Clemow, Frank—"The Cholera Epidemic of 1892 in the Russian Empire." *Longmans, Green and Co*. London, 1893. 5s.
- Delamare, Marcel.—"Précis de la prophylaxie pratique." 356 pp., 8vo. *G. Carré*. Paris, 1894.

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- Kreidmann.—"Ursache, Vorbeugung und Bekämpfung der Cholera." 168 pp., 8vo. *M. Schmidt*. Hamburg, 1893.
- Lesage, A.—"Le choléra." 207 pp., 12mo. *Gauthier, Villars et Fils*. Paris, 1894.
- Marmorek, Alexander.—"Versuch einer Theorie der septischen Krankheiten. Auf Grund experimenteller Untersuchungen." 131 pp., 8vo. *F. Enke*. Stuttgart, 1894.
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- Parkes, L. C.—"Infectious Diseases: Notification and Prevention." 202 pp., sm. 8vo. *H. K. Lewis*. London, 1894. 4s. 6d.
- Rabe, Alexander.—"Die modernen Fiebertheorien." 68 pp., 8vo. *A. Hirschwald*. Berlin, 1894. 1s. 9d.
- Reich, Eduard.—"Studien über die epidemischen Krankheiten und deren Verhütung." 397 pp., 8vo. *K. F. Pfau*. Leipzig, 1894.
- Richardiere, H.—"Whooping-cough." Translated by Joseph Helfman. 162 pp., 12mo. *G. S. Davis*. Detroit. 1893.
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- Wall, A. J.—"Asiatic Cholera: its History, Pathology, and Modern Treatment." *H. K. Lewis*. London, 1893. 6s.
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- et Prophylaxie des maladies des enfants." 640 pp., 12mo. *Rueff et Cie.* Paris, 1894.
- Felizet, G.—"Les hernies inguinales de l'enfance." 435 pp., 8vo. *G. Masson.* Paris, 1894.
- Goodhart, J. F.—"The Diseases of Children." 5th ed. 734 pp., 12mo. *Churchill.* London, 1894. 10s. 6d.
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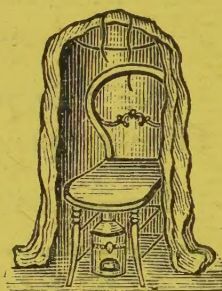
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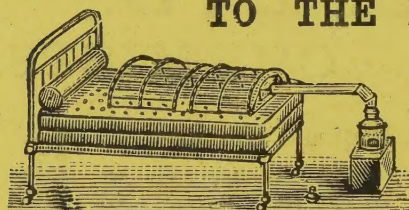
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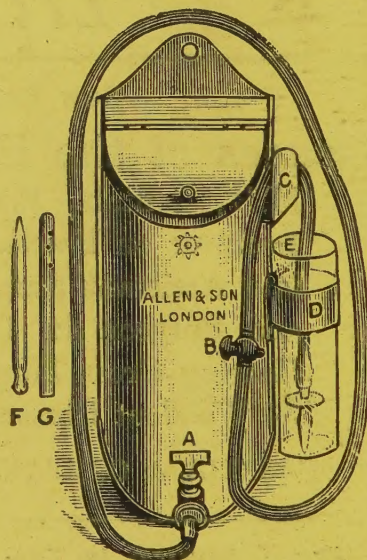
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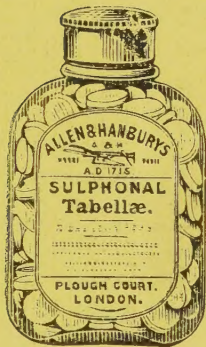
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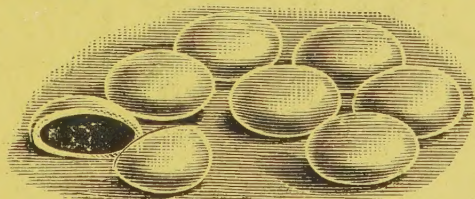
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